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THESIS

**TELECOMMUNICATIONS GROWTH IN LATIN AMERICA: A
COMPARATIVE ANALYSIS, THE DEVELOPMENT AND
POLICY OF TECHNOLOGIES IN EMERGING MARKETS**

by

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September 2009

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ANALYSIS, THE DEVELOPMENT AND POLICY OF TECHNOLOGIES IN
EMERGING MARKETS**

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ABSTRACT

This thesis will focus on the area of telecommunications technologies and policies, as developed and adopted in Latin America. Though the whole of Latin America would provide a great area of research interest, this thesis will delve into the countries of Colombia, Mexico, and Venezuela. These three countries play vital roles in the development of Latin America, and retain unique relationships with the United States as allies and trade partners.

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LIST OF ABBREVIATIONS AND ACRONYMS

AUC	Autodefensas Unidas de Colombia
BRIC	Brazil, Russia, India, and China
CGT	Carso Global Telecommunications
CFTA	Colombian Free Trade Agreement
CRT	Comisión de Regulación de Telecomunicaciones
COFATEL	Comisión Federal de Telecomunicaciones
CONATEL	Comisión Nacional de Telecomunicaciones
CNTV	Comisión Nacional de Television
MEXTEL	Compañía Telefónica y Telegráfica Mexicana
DTH	Direct-to-Home
ELN	Ejército de Liberación Nacional
ETB	Empresa Telefonica de Bogotá
ETM	Empresa Telefonica de Medellín
FCC	Federal Communications Commission
FARC	Fuerzas Revolucionarias de Colombia
CITEL	Inter-American Telecommunications Commision
ITU	International Telecommunication Union
MPPTI	Ministry of Popular Power for Telecommunications and Information
MTC	Ministry of Transport and Communications
MMDS	Multipoint Microwave Distribution System
NAFTA	North American Free Trade Agreement
OMD	Office of the Managing Director
OECD	Organization for Economic Development
OAS	Organization of American States
PAN	Partido Acción Nacional (National Action Party)
PC	Partido Conservador (Conservative Party)
PL	Partido Liberal (Liberal Party)
PRI	Partido Revolucionario Institucional
SCT	Secretaría de Comunicaciones y Transportes
MEXTELCO	Telefónica Mexicana
TELMEX	Telefonos de Mexico
UFC	United Fruit Company
USDOS	United States Department of State
USTR	United States Trade Representative
WTO	World Trade Organization

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I. INTRODUCTION

A. DESCRIPTION AND BACKGROUND

The telecommunications industry is primarily a business, and, like any other business, if profits are not being made, failure will follow. Because of the nature in which telecommunications has developed and become integral to every aspect of society, it could be argued that regulation and policy must govern this industry. No matter which telecommunications innovation—the telegraph, the telephone, the Internet, or mobile communications—the policies and regulations governing its use and implementation have been critical in the development and adoption as they have emerged. To ensure that the public may benefit from its creation while simultaneously ensuring that its infrastructure and network remains intact for the economic, social, and political well being, national governments have at times changed the manner in which it has managed these responsibilities.

In recent years, there has been a telecommunications explosion in developing world economies. Robust technology and service breakthroughs in home, office, and personal connectivity and communications has unquestionably increased. The enhancement of audio, video, satellite and Internet capabilities continues to rise, reflective of Moore's law concerning the doubling of chip capacity every 18 months. While the technology of the hardware might double every two years, the rate at which this technology is adopted and reaches the average home user is certainly not

doubling every two years. With the ever-shrinking boundary between computing and telecommunications technologies, the interconnectivity is disappearing and the technologies are becoming one. Fewer small towns in underdeveloped or developing countries are being left behind. "Distance" is becoming irrelevant as telecommunications penetrate remote locations and the world is suddenly interconnected.

As a global leader in telecommunications and the world's largest economy, the United States' policies and regulations have often influenced how other nations have developed their policies and regulations, and furthermore, have had a profound impact on how the nations have adopted their new technologies. At the regional and international levels, however, the influence of the United States, while great, is only an influence. Many additional factors must be accounted for in the development and adoption of telecommunications, including government intervention, geography, regional and global alliances or estrangement, and economic, social, and political stability, to mention a few. As such, one can look at the regional areas of the world and ask why one has developed these technologies differently, or at a different rate than that of another. Only then can one take the next step to make assumptions on how a change could benefit or hinder future growth and development. With the third largest Spanish-speaking population in the world, the United States should look toward its neighbors to its south and ask these very questions about the new technologies in Latin America.

The development and adoption of these new technologies occur at a different rate in Latin America than in the United States. One goal is to estimate the rate of adoption through the analysis of the actors, technologies, existing infrastructure, competition, and policies and regulations that are in place. This thesis will examine the countries of Colombia, Mexico, and Venezuela. Mexico, the southern neighbor to the United States is Latin America's second most populous nation, and a telecommunications leader in the Western Hemisphere. Its development and the impact of the North American Free Trade Agreement (NAFTA) has had a significant affect on U.S. telecommunications. Colombia, the United States' strongest ally in South America, is a long time trading partner, and by 2005 had the highest cell phone teledensity in Latin America.¹ Having recently nationalized many of its industries to include the telecommunications industry, Venezuela is of particular interest given the interdependence with the United States through the oil trade.

B. WHY THIS THESIS

In this thesis, the exploration of telecommunications policy in these countries, (Colombia, Mexico, and Venezuela) and how they have influenced regional development, will be explored. Specifically, analysis of these three countries' policies, regulatory bodies, and international agreements, in comparison to the rates of growth with respect to telecommunications capabilities in the last two decades, will be examined. Through the discovery of the principal

¹ Library of Congress - Federal Research Division Country Profile: Colombia, February 2007.

actors, infrastructure and resources available for future development, and the influences and interrelationships with creating and conforming to policies, a potential outlook for continued growth and expansion throughout Latin American can be produced. Additionally, the extent that these actors have developed and collaborated in their countries, and throughout the region, by using political and international agreements, could further assist in this endeavor. Finally, an overall comparison between these three countries, Latin America, and the United States' own policies and regulations will enable further insight for recommendations of the continued development within the United States and the Latin American region.

Ultimately, one of the greatest motivating factors in personal, business, and governmental decision is money. Quite simply, the law of supply and demand will not support a business whose costs for the same type and quality of service can be obtained at a considerably lower level, because, given the choice, an informed individual would not logically choose the higher cost. Thus enters government. Regulation can be looked at as basically the way that the government ensures it can tax the services and collect its fair share of the transaction. With new technologies such as VOIP, for example, greatly diminishing long distance and international telephone costs, the government must find ways to adapt, to regulate, or tax, these new technologies. In short, the focus of this study will be the balance of the relationship between the consumer, the provider, and the government.

To accomplish the aforementioned task, this thesis will explore how the telecommunications industry has developed throughout Latin America, particularly in terms of comparing the relatively different infrastructure policies and decisions in the countries of Colombia, Mexico, and Venezuela in the last one to two decades. In order to accomplish this, the uniqueness in terms of how Latin America has gone about developing and implementing its telecommunications systems, and what future issues Latin America is facing in the industry, must also be explored and thoroughly understood. The regulatory policies are also very influential factors in the development of the new telecommunications technologies, in the region and respective countries. As such, the enforcers of these policies and regulations and the manner in which they have chosen to allow, or block, competition has, in instances, helped or hurt competition.

C. EXTENT OF THESIS

This thesis will encompass the exploration of policy and regulation, compared to the development and adoption of telecommunications technology in the Latin American region. The scope will further be bounded by focusing in on the countries of Colombia, Mexico, and Venezuela. Development of telecommunications policy and technology throughout the last one to two decades will be the principle research timeframe. The thesis will determine a rate of adoption through the analysis of the actors, technologies, existing infrastructure, competition, and policies and regulations that are in place. Principal areas for the development and adoption rates will be the attainment of landline phone

connectivity and usage, broadband Internet connections, television services and capabilities, cellular phone services and capabilities, and wireless networking and communications capabilities. Consideration and interest will also annotate the adoption and integration of WiMax, residential fiber optics, Voice over IP, and other emerging telecommunications technologies. Finally, a comparison and interaction will be drawn among each other, the Latin American region, and the United States.

D. ORGANIZATION AND METHODOLOGY

The focus of this research will revolve around the analysis and trends of the telecommunications markets compared to the types of regulations and policies throughout Latin America. This thesis will be organized in five sections. Chapter II will explore the development and adoption in Mexico. Chapter III is a case study on Carso Global Telecom and América Móvil. These companies are the most important telecommunications companies in Latin America. Chapters IV and V will focus on Colombia and Venezuela respectively, each presenting unique viewpoints for development.

Finally, this thesis will investigate a regional overview and conduct an analysis and comparison. Through this comparison and analysis of the research conducted, the final step can be completed in exploring the possibilities for improvement in Latin American and in the United States' policies and regulations. Furthermore, the potential for a future outlook of the telecommunications industries in the countries of Mexico, Colombia, and Venezuela as well as the region of Latin America can be conducted as a basis of what

was learned through the analysis and comparison of the policies and regulations with respect to the adoption and development.

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II. MEXICO



Figure 1. Political Map of Mexico. (From Maparchive.org, February 2009)²

A. INTRODUCTION

The United States' neighbor to the south, Mexico, has a diverse history of culture, geography, and economic development. Mexico is a country deeply rooted in its history and traditions; it was home to many thriving civilizations including the Mayan and Aztec Empires, signs of which remain very visible throughout the country in the

² The Map Archive, "Mexico (Political) 2001," 12 April 2007, http://www.maparchive.org/details.php?image_id=277&sessionid=e636564a7546f0ffbc32a296d333a00e.

present day. Following the Spanish conquest by Hernan Cortes in 1519, it was also Spain's largest territory, and included much of the United States' present day southwest. According to Spanish Search Engine Optimization (SEO) Consulting, Mexico holds the world's largest Spanish speaking population, followed by Colombia, and then the United States (Table 1). It has the second largest economy in Latin America, surpassed only by Brazil, and Goldman Sachs predicts that, by 2050, Mexico is expected to be the sixth largest economy in the world behind, China, United States, India, Japan, and Brazil.³ This expected growth is based on the current growth rates and current trade relations and partnerships. Furthermore, the influence of the North American Free Trade Agreement (NAFTA) also has influence into this outlook for Mexico's economy.

Spanish Speaking Populations		
Country	Speaking Population	World Percentage
1. Mexico	109.95 M	24.30%
2. Colombia	45.01 M	9.95%
3. United States	44.32 M	9.80%
4. Argentina	40.68 M	8.99%
5. Spain	40.49 M	8.95%
6. Perú	29.18 M	6.45%
7. Venezuela	26.41 M	5.84%
8. Chile	16.45 M	3.64%
9. Ecuador	13.93 M	3.08%
10. Guatemala	13.00 M	2.87%

Table 1. Top 10 Spanish-Speaking Populations. (From spanishseo.org, August 2009)⁴

³ Dominic Wilson and Anna Stupnytska. *The N-11: More Than an Acronym*. New York, NY. 28 March 2007, Issue 153, 9.

⁴ Spanish SEO Consulting, *Worldwide Spanish Speaking Population Statistics* "Spanish Speaking Population by Country." <http://www.spanishseo.org/resources/worldwide-spanish-speaking-population>.

Mexico has historically developed a great deal of its infrastructure and improved its economy through outside investment. This is particularly so with the trade and investment relationship it has had with the United States throughout various stages of its development, and more recently, since joining NAFTA on January 1, 1994. As such, Mexico's development has been closely integrated with two primary factors. The first of these is the sensitivity Mexico has had to the world economy, and particularly the U.S. economy. Just as the U.S. experienced the great depression, the Mexican economy also experienced a drastic drop in investment during this timeframe. The other great factor that closely ties to Mexico's economy and development is the history it has had with the struggles of internal conflicts and uprisings. These two factors that tie in so closely with Mexico's economy have been influential in the technological developments and telecommunications infrastructure that Mexico has today.

Mexico leads Latin America's telecommunications industry and competes significantly at global levels, but it has not always been that way. The development of Mexico's telecommunications industry has included several periods of rapid growth, alternating with periods of limited to no growth, and has even experienced noted regression. Following one of these periods of very slow growth, and extreme economic hardship during the 1980 and into the 1990s, Mexico focused on improving its telecommunications infrastructure and the poor service that was being provided, while simultaneously pulling the country out of large amounts of debt, and improving the country's economic well

being. The result was one of the most notable developments in Mexican telecommunications history: the privatization of Mexico's telephone system and the rebirth of Telmex.

B. BACKGROUND

1. Country Overview

Once counting Texas, New Mexico, Arizona, Nevada, Utah, California, and parts of Colorado as part of its territory, Mexico is now slightly larger than 2.8 times the size of Texas and has a 2008 population of approximately 108 million people.⁵ Its northern border with the United States runs approximately 1951 miles⁶ that has often comes under close scrutiny with regards to drug trafficking, human trafficking, and illegal immigration. Mexico shares its southeastern border with Guatemala and Belize. Its capital city, Mexico City is not only Mexico's largest city but also contends as one of the world's two largest. The home to the once wealthy and powerful Aztec Civilization, Tenochtitlan was the Aztec capital city and is the site where present day Mexico City lies, remnants of which can still be found today in and around the city.

Mexico City not only lies atop the old city of Tenochtitlan, but it was also constructed by draining the surrounding Lake Texcoco (Figure 2), a feat which has, over the years, proven to create increased challenges in development as a result of sinking buildings and other infrastructure.

⁵ CIA World Factbook 2008.

⁶ Ibid.

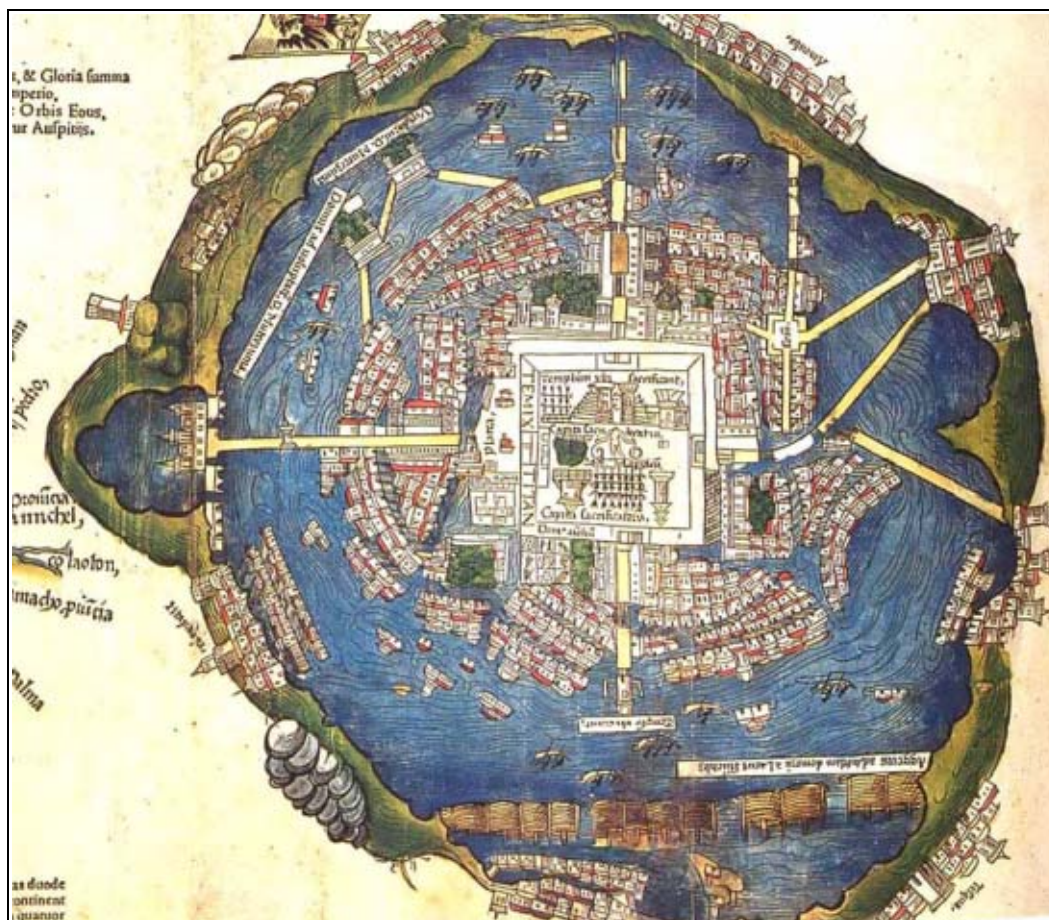


Figure 2. Map of Tenochtitlan (From famsi.org, July 2009)⁷

Mexico City is located at an elevation of approximately 7,350 feet in the Valley of Mexico, surrounded by high mountains. As with much of the central region of the country, high mountains and volcanoes surround many of the cities of this high plateau area. Despite Mexico's southern latitude, the height of three of Mexico's volcanoes are sufficient to maintain snow year round, including Mexico's highest point of Pico de Orizaba at an altitude of approximately 18,500 ft and can be seen as far away as the

⁷ Foundation for the Advancement of Mesoamerican Studies, Inc. "John Pohl's Mesoamerica, The Aztecs: Tenochtitlan." 02 July 2009
http://www.famsi.org/research/pohl/pohl_aztec2.html.

Gulf of Mexico to its east. While the central area of Mexico is dominated by a high plateau that is surrounded by mountains, the southeast and northwestern coasts are filled with vast lowlands and long sandy shorelines that bring many tourists and support a vigorous hospitality industry.

The hospitality industry, which provides an important source of income for Mexico, is only a fraction of Mexico's service sector that makes up the greatest amount of its GDP. Mexico's greatest sources of revenue come from its service sector, natural resources, and industry. Mexico's richest resource is its petroleum reserves, making it the world's seventh largest producer and the United States' second largest source for oil importation, led only by Canada.⁸ The combination of vast natural resources and the proximity to the world's largest consumer has aided Mexico's economic development. The United States not only represents the world's largest consumer to Mexico but also represents its largest trading partner in terms of both import and export, a fact that was strengthened following the North American Free Trade Agreement (NAFTA) coming into effect in January 1994. While NAFTA is most notable for its influence on the agricultural industry, overall trade in all areas has increased and according to a 2008 NAFTA Facts Bulletin from the Office of the United States Trade Representative (USTR) "from 1993 to 2007, trade among the NAFTA nations more than tripled, from \$297 billion to \$930 billion. Business investment in the United States has risen by 117 percent since 1993, compared to a 45 percent increase between 1979

⁸ Energy Information Administration.

and 1993.”⁹ Business investment was not contained to the United States alone and similar amounts of growth have been seen in both Mexico and Canada.

2. Political and Social Climate

Closely tied to the investments of Mexico’s economy and telecommunications developments have been its political relationships with other nations and its own internal struggles and wars. As evident throughout several time periods in Mexico’s history, the lack of internal stability has demonstrated that overseas investment will diminish or eliminate. Several of these periods of significance, in which correlation between the technological advancements of the nation can be seen with the political regimes in the country were: the Revolution (1910-1916), the timeframe surrounding President Lázaro Cárdenas (1934-1940), and the decade of the 1980s. Furthermore, it is also important to remember that GDP, increased miles of infrastructure, and new developments are not the only measures by which an industry will develop. Development of a nation requires much more and often the greatest times of industrial development come at the expense of the country’s people and natural resources. While most recently Mexico has struggled greatly with the drug war¹⁰ that has had a significant impact in its economy, its more detailed effects are not yet

⁹ Office of the United States Trade Representative. NAFTA FACTS: NAFTA Fact vs. Fiction. March 2008 <http://www.ustr.gov/sites/default/files/NAFTA-Myth-versus-Fact.pdf>.

¹⁰ According to Stratfor Global Intelligence, while Colombia is the largest producer of cocaine, Mexico is currently the largest source distributor.

fully known. Many of these and other important events throughout Mexico's history are highlighted in Table 2.

DATE	EVENT
1519-1521	Spanish conquistadors led by Hernan Cortes destroy Aztec Empire.
Sep 16, 1810	Father Manuel Hidalgo calls for independence from Spain in "The Cry from Dolores." This date is Mexico's Independence Day.
Feb 24, 1821	General Iturbide establishes new nation and proclaims himself Emperor Iturbide I.
1823	General Santa Anna deposed Iturbide and declares a Republic.
1824-1834	Federalist (liberal) regime: Santa Anna in power.
1834-1846	Santa Anna double-cross, leads Centrists to power.
Mar 1, 1836	Texas declared its independence at the Battle of San Jacinto.
Dec 29, 1845	The United States annexes the Republic of Texas.
1846-1848	Mexican-American War. Ends with Treaty of Guadalupe Hidalgo relinquishing present-day Texas, New Mexico, Arizona, California, Nevada, Utah, and part of Colorado to the U.S.
1857	New constitution and a liberal victory, but three years of civil war followed until Benito Juarez emerged as liberal leader and President.
1863	French army captures Mexico City and Archduke Maximilian of Austria-Hungary, proclaimed second Emperor of Mexico.
1865-1867	U.S. Civil War ends, U.S. sends troops to the border. French withdraw, Maximilian is executed at Querétaro.
1867-1872	Juarez is again President of Mexico; died in office.
1877-1911	Porfirio Díaz dictator of Mexico. Promotes foreign exploitation of Mexico's natural wealth, Mexico City becomes a metropolis, country grows at expense of people and resources.
1910-1916	Second Mexican (internal) Revolution.
1917	New Mexican constitution adopted.
1934	Lazaro Cardenas elected President and revives social revolution, organized labor, institutes land reform and expropriates foreign-owned property.
1941-1945	World War II. After Pearl Harbor, Mexico declares war on the Axis.
Sep 19, 1985	Amidst financial crisis, earthquake hits Mexico City killing approximately 10,000 people.
Jan 1, 1994	Mexico joins the U.S. and Canada in NAFTA.

Table 2. Mexico Historical Timeline¹¹

¹¹ Compiled from various sources.

The regime prior to the second Mexican Revolution in 1910, which had been led by the dictatorship of Porfirio Diaz for approximately 30 years, experienced large amounts of growth, but at a great cost to natural resources and people through slavery and genocide. Democracy and freedom from dictatorship did come at a price, as the revolution was a direct cause of millions of dollars in the country's infrastructure including the railroad, telegraph, and telephone lines of the day being lost. Much of the telecommunications progress that had been made was not only slowed but also reversed. Furthermore, the Mexican revolution caused foreign investors to withdraw from further investment in Mexico until stability had been achieved until the 1920, despite the revolution's end in 1916. While investments from outside sources started to regain momentum in the 1920s, it was not until the 1930s that reform and stability in the country grabbed hold, and political change came about with the election of Lázaro Cárdenas.

In 1934, Lázaro Cárdenas, the leader of the Partido Revolucionario Institucional (Institutional Revolutionary Party—PRI), was elected into office bringing about radical changes and land reforms that commenced an economic boom for the country. The country also shifted from a land owner-land worker role to a more modern agrarian-industrial division of labor. Though serving only a single six-year term as president his ideas and precedence remain as the country continued on a virtual single party system with the PRI in control until 2000 with the election of President Vicente Fox from the Partido Acción Nacional (National Action Party—PAN). The PRI, which ultimately lost power

because of corruption and doubt in election integrity, pushed Mexico forward through several decades of growth and development.

Growth and development once again came to a standstill in Mexico, and in most of Latin America as well, in the 1980s, when serious economic problems came about. The specific economic crisis for Mexico commenced with the fall in world oil prices. As the one of the top oil producers in the world, Mexico's economy at the time was overly dependent on its oil production for wealth generation and internal growth. Mexico was further crippled as a result of government ownership in many of the country's industries, having nationalized the petroleum, cement, banking, railroad, and telecommunications industries. Such overdependence on a single resource created an equally large deficit once the price of oil fell in the early 1980s and culminated in extremely high inflation by the end of the decade. To help aid in the recovery from much of its deficit the Mexican government commenced the privatization of many of its industries including the telecommunications industry in 1990.

C. TELECOMMUNICATIONS DEVELOPMENTS

Telecommunications developments in Mexico have closely followed the developments in the United States and have also played a large role in other Latin American countries. A little more than seven years after the completion of the first U.S. telegraph line on May 24, 1844¹², Juan de la

¹² Bert Lundy, *Telegraph, Telephone, and Wireless: How Telecom Changed the World*. (BookSurge Publishing, 2008), 51.

Granja and William George Stewart finished installation of Mexico's first telegraph and commenced service between Mexico City and Nopalucan, Puebla on November 5, 1851. The growth of the telegraph continued to expand with further expansion of a telegraph line connecting Mexico City with Veracruz two years later and ultimately achieving its first international connection by 1867 by means of an affiliate of Western Union Telegraph.¹³ Mexico had now joined the international telecommunications world and the expansion of the telegraph continued to expand. Primary expansion of the network occurred in the central region in and surrounding Mexico City, but extensive growth also occurred in the mineral and oil rich areas of northern Mexico. By 1901 Mexico's telegraph network encompassed 47,828 km of lines that were owned by the federal government and another 12,036 km by the railroads, 6917 km by state governments, and 3942 km by private investors.¹⁴ The networks operated and "owned" by the private investors were actually installed under concessions or permits by the government that could either be renewed or extended following expiration.

Mexico's first telephone was connected on March 13, 1878 between Mexico City and Tlaplan and later that year the Presidential Palace, several police stations, and other key government offices were also connected. In these early days of Mexican telecommunications, two prominent telephone companies emerged to lead the industry. The first of these was Telefónica Mexicana (MEXTELCO), a subsidiary of the

¹³ Kathleen A. Griffith, "Mexico," *Telecommunication in Latin America*, Eli M. Noam, J., Eric W. Skopec, eds. (Oxford: Oxford University Press, 1998), 168.

¹⁴ Carlos A. Merchan Escalante, *Historia de las Comunicaciones y los Transportes en México*, México, D.F., Secretaría de Comunicaciones y Transportes, 1988, 144.

Western Electric Telephone Company, later becoming Compañía Telefónica y Telegráfica Mexicana, S.A. (MEXTEL) in 1905. The other leading company established four years later was the Empresa de Teléfonos Ericsson, S.A. (Mexeric), a Mexican subsidiary of the Swedish Company L. M. Ericsson.

Following the Mexican Revolution's destruction and retreat of technological advancement, the Mexican Constitution of 1917 declared that all telegraphy and other means of communications were to become a monopoly of the national government. Despite this decree, private investors could engage in telecommunications through concessions, permits, fees, and regulation of power and frequencies. These concessions enabled expansion to commence once again and both companies eagerly sought to continue expansion, Ericsson having achieved connectivity to 10,000 customers by 1925. The 1934 elections brought about many changes for Mexico including changes in the telecommunications sector concerning regulation and policy. Two years after taking presidential office, Cardenas pushed forth the 1936 Law of Expropriation. This law not only radically changed the political and social dynamic of the country through land reform, but also pushed to unite the two leading Mexican telecommunications companies, MEXTEL and Mexeric, to a merger, which would fall under government control. The PRI would furthermore change telecommunications when, in 1938, another law was passed requiring the Mexican telecommunications industry to be under the control of the federal government. The Secretaría de Comunicaciones y

Transportes (SCT-Secretary of Communications and Transportation) was formed and received control for reasons of national security.¹⁵

By 1940, however, the early signs of progress in the country could also be seen in Mexican telecommunications, but the PRI sought faster change and, as a result, the Communications Law of 1940 officially forced the MEXTEL and Mexeric companies to come together in the greater interest of the Mexican people. On December 23, 1947 MEXTEL and Mexeric came together to form Teléfonos de México, S.A. (Telmex).¹⁶ The original ownership of Telmex was divided between the Continental Corporation (the parent corporation of the International Bell Telephone Company), the L.M. Ericsson Corporation, and three local Mexican Companies. The shares were divided as follows: The Continental Corporation 409,000 shares (51.18%), L.M. Ericsson Corporation 389,950 shares (48.79%), and the other 3 companies totaling 150 shares (.03%). As a result of this agreement, Telmex would pay Ericsson 2.5% of gross annual income over the next 10 years, and increase its concession to 3 percent in 1958.¹⁷

Throughout this period, Telmex consolidated and capitalized as the principal telephone company in Mexico. The introduction of Telmex meant that telephony in Mexico would be met with rapid expansion in telephone

¹⁵ Clara Luz Álvarez, "*Historia de las Telecomunicaciones en México.*" *Revista del Doctorado en Derecho*. México, D.F., 24 September 2007.

¹⁶ Griffith, 170.

¹⁷ Emilio Vargas, *México- Historia de Las Telecomunicaciones.*, Asociación Iberoamericana de Centros de Investigación y Empresas de Telecomunicaciones. <http://www.ahciet.net/historia/pais.aspx?id=10145&ids=10677>.

infrastructure and service. In particular the 1950s brought about rapid growth for the company when Telmex installed a critical microwave link between Mexico City and Puebla consisting of 23 telephone channels, created Industria de Telecomunicaciones, S.A. (Indetel) enabling the manufacturing of telecommunications equipment within the country, and bought out Mexico's International Telephone and Telegraph (ITT) branch. As the dominant force in Mexican telecommunications, Telmex faced competition only from the SCT, which operated a negligible number of telephone lines primarily used for government networks, thus becoming a virtual monopoly. In 1972, the government of Mexico acquired a 51% ownership in the company and placed the director of the SCT as the Chairman of the board of Telmex leaving the other 49% to be publically traded in the stock exchanges of both Mexico and New York; the monopoly that had control over Mexico's telephones was now a government monopoly.

Telmex's telephone monopoly would last for almost two full decades, through which the national economic troubles of the 1980s would contribute to reduced development, minimal expansion, and a lack of maintenance to the existing infrastructure. These economic troubles would be further magnified with devastation that was caused as a result of a large earthquake that struck in 1985. By the end of the 1980s, Mexico and Telmex were suffering from many economic troubles; Telmex being indebted up to 23% of its capital. The President of Mexico, Carlos Salinas de Gortari (1988-1994), took measures to correct the economic situation of the country among which included the sale of the 51% ownership of Telmex. President Salinas de Gortari was very

familiar with the workings of Telmex, having been on the board of directors, and the profit that the 51% share of ownership would bring the country during difficult economic times. Aside from the country's need to reduce debt, his experience on the board provided him with the insight to see that the government monopoly hindering performance as a company and stifling Mexican telecommunications, shifting in degrees of impact according to the political leaders that were in office. Furthermore, the privatization of Telmex would send an international sign to foreign investors that there were investment opportunities in Mexico. With the announcement of privatization in 1989, the sale of Telmex was finalized in 1990. Along with the privatization of Telmex, the Telecommunications Law of 1990 authorized competition in the form of concessions for public telephone networks. Several other companies throughout the years took up these concessions but penetration of Telmex's established infrastructure has proven to be a very difficult task to accomplish.

The former government monopoly was sold off into what was (and perhaps still remains) a private monopoly over the telecommunications sector in Mexico. President Salinas de Gortari's predictions that Telmex would obtain an increased growth as a privatized company yielded correct. Telmex entered a new era with its purchase by the Grupo Carso, the Southwestern Bell Corporation, and France Telecom. The voting rights over Telmex in 1990 were held by Grupo Carso with the largest share a 20.5% vote, Southwestern Bell held 10% and France Telecom held 5%, with the remaining vote by individual investors through the sale of common stock.

Today, Grupo Carso (now known as Carso Global Telecom) is the majority shareholder with 58.2% of the overall company (see Table 3).

	AA	A	L	Total
Total Shares (millions)	8,116	404	9,960	18,479
% Distribution	43.90%	2.20%	53.90%	100%
Carso Global Telecom	73.9	22.8	46.8	58.2
AT&T International Inc.	22.2	0	0	9.7
Other Mexican Investors	3.9	0.4	0	1.7
Public Investors	0	76.8	53.2	30.4
Total	100	100	100	100

Table 3. Telmex Shareholder Structure. (From telmex.com, March 2009)¹⁸

Carso Global Telecom (which will be further explored in Chapter III) is Mexico's leading telecommunications enterprise today. Mexico's telecommunications industry is changing from a historically government controlled industry to a more free enterprise system with competitive markets and reduced regulation. This has allowed for increased and modernized infrastructure to reach the Mexican people at a much faster rate than in previous decades and has tied the industry to several companies rather than a single entity. Having said this, there are still serious problems with Mexico's telecommunications industry. Mexico's leading telecommunications company, Telmex, while open to competition in theory, is so far beyond its competition that

it enjoys a virtual monopoly, setting rates at much higher levels than other regions in Latin America and the world. Furthermore, Telmex has also been the object of such complaints for "abuses such as cross-subsidies, charging for dialing to 800 numbers from public telephones, resale of both switched and un-switched interurban transport capacity to new entrants, and abuses of the local data base, among others."¹⁹ In 2000, the Comisión Federal de Competencia (CFC - Federal Competition Commission) found against Telmex for these complaints. Specifically, customers that were calling 800 numbers were required to purchase pre-paid calling cards sold by Telmex in order to make a call from a public phone unless they were calling an 800 number provided by Telmex.

D. POLICY AND REGULATIONS

1. Regulatory Body and Policy Overview

Regulation and policy making in Mexico's telecommunications industry has been present since the first telegraph was planned and installed. Like many countries throughout the world, telecommunications has been considered a vital system to the national security of the country and as such requires certain measures to ensure survivability and accessibility for government and emergency communications. Mexico's first regulations and policies fell under the Secretary of Communications which was

¹⁸ Telmex, *Informacion Corporativa - Shareholder Structure*. 31 March 2009 <http://www.telmex.com/mx/>.

¹⁹ Organization for Economic Co-operation and Development, *Mexico Regulatory Reform: Regulatory Reform in the Telecommunications Industry*. Danvers, MA. 1999.

established during the dictatorship of Porfirio Diaz, and was later renamed the Secretary of Communications and Public Works and again to the Secretaría de Comunicaciones y Transportes (SCT) in 1938. Today, the SCT jointly manages the responsibilities to "take the charge of exercising the faculties and the office of the matters pertaining to regulate, to supervise and to promote the efficient development of telecommunications"²⁰ along with one of its divisions the Comisión Federal de Telecomunicaciones (COFETEL—Federal Telecommunications Commission). COFETEL was created on August 9, 1996, through a special Presidential Decree.

COFETEL acts in almost all respects as Mexico's equivalent of the United States' FCC, and the role of the SCT acts in many ways similar to the Office of the Managing Director (OMD), which is responsible for the FCC's administration, and management of budget, personnel, security, contracts, and publications.²¹ There are distinctions in the relationship between entities: in the U.S., the OMD and the FCC are structured such that the OMD is an office that falls a part of the FCC. In the case of Mexico, COFETEL is a part of the SCT and budgetary matters for each office are determined separately the SCT but receives its powers through delegation of the SCT. While other differences in structure and organization exist, one of the most interesting differences in policy and regulation making that exists is the powers that differ between COFETEL

²⁰ Comisión Federal de Telecomunicaciones, *Diario Oficial*, 2 January 2006. http://www.cft.gob.mx/wb/Cofetel_2008/Cofe_reglamento_interno_de_la_cofetel 43.

²¹ Federal Communications Commission (FCC), *Office of Managing Director* 14 July 2009 <http://www.fcc.gov/omd/>.

and the SCT with respect to regulation and enforcement. Because COFETEL cannot act alone in a matter that relates to the enforcement or the removal of concessions, it can only make recommendations to the SCT in such matters. The SCT in turn makes recommendations to COFETEL when problems arise that require settlement of disagreement, pricing, and the promulgation of the policies and regulations. The table that follows highlights major telecommunications regulatory reforms.

Aug-90	The SCT agreed to a new concession for Telmex, providing Telmex with a monopoly in domestic and international long distance until 1996.
Oct-90	A new regulatory framework (Reglamento de Telecomunicaciones) was adopted which spelled out SCT's responsibilities and provided for the grant of new concessions in all areas except those reserved for the government.
1993	Foreign Investment Law enhanced foreign investment participation in the telecommunication sector. Foreign investment of up to 49% ownership of capital stock of operators of a fixed network was permitted. Higher levels of foreign investment were permitted in cellular carriers, provided a favorable resolution from the National Commission of Foreign Investment was obtained.
1-Jul-94	SCT published a resolution on how interconnection agreements between long distance carriers and the incumbent were to be established. The same resolution established a calendar for the opening of equal access competition, beginning with 60 cities in 1997, and spreading to the whole country by 2000. The resolution also established that interconnection would be cost-oriented and in line with international norms and benchmarks.
Mar-95	Constitution was modified to allow foreign private investment in satellite communications.
7-Jun-95	Federal Telecommunications Law (FTL) was enacted, substituting in large part the old "Ley de Vías Generales de Comunicación" which had applied since 1940.
Oct 95 - Jan 96	SCT published the rules under which concessions would be granted to long-distance operators and local networks, respectively. During late 1995 and 1996, concessions were granted to new entrants into fixed domestic and international long-distance services.

26-Apr-96	Following the failure of the carriers to reach agreement (filed with SCT in March 1996), the SCT issued a resolution determining the interconnection charges for long-distance service to be applied during 1997 and 1998, and establishing that the charges for "special projects" needed to provide interconnection would be determined by an expert hired by all long distance carriers.
21-Jun-96	the Long Distance Service Rules were published together with the new national numbering and signaling plans.
9-Aug-96	COFETEL was set up by Presidential Decree. Late November the same year the first auction for paging services took place.
11-Dec-96	COFETEL published rules governing the provision of international long-distance services, setting out the proportional return system. On 16 December 1996, the regulation governing resellers of pay phones was implemented.
1-Jan-97	competition began in those long distance services that required interconnection.
Aug-97	COFETEL published the regulation governing communication via satellite (reglamento de comunicaciones vía satélite). In the same month Satmex was privatized.
23-Oct-97	COFETEL published the Local Service Rules.
Dec-97	Competition authority concluded that Telmex had "substantial market power" and in March 1998, it confirmed its resolution.
Dec-98	COFETEL published a resolution setting out the interconnection charges to apply for 1999 and 2000. Interconnection charges were lowered, and a system of calling-party pays introduced for mobile. In addition, COFETEL published rules for accounting separation, reductions to the number of local service areas and a program to expand national numbers from 8 to 10 digits, according to the basic numbering plan.
11 Jan 99	COFETEL published resolution approving the national frequency allocation plan.
25 Feb 2000	COFETEL regulation of television and audio restrictions.
12 Jun 02	Decree approved declaring special regulation of dominant carrier following Telmex ruling of dominance in basic local, international long distance, national long distance, and interconnection .
2003	COFETEL published the regulations governing the quality of local mobile service.
12 Aug 05	COFETEL published the resolution for the commercialization of national and international long distance telephony in compliance with WTO ruling.

Table 4. Mexico Important Regulatory Events^{22,23}

²² OECD, 1999, 7-8.

²³ ITU ICT Mexico Report.

2. Frequency Spectrum Management

The frequency spectrum in Mexico is managed through a set of auctions, as established in the Federal Telecommunications Law and overseen by COFETEL and the Comisión Federal de Competencia (CFC - Federal Competition Commission). The bidders at the auction must bid for a concession via computer in a simultaneous ascending auction for the right to use the spectrum for a set period at which point that portion of the spectrum becomes eligible to be re-auctioned or reallocated. One of the regulations that govern the allocation of frequencies prohibits the concession holders of public wireless service from receiving subsidies or privileged treatment from other telecommunications concessions and furthermore all permit holders must be independent of each other. In the case of Telmex and América Móvil, when the two companies broke apart the wireless division that became América Móvil was now considered a separate entity with individual and autonomous organization structure. As a further stipulation of the frequency spectrum's management América Móvil and Telmex balance a fine line with respect to the prohibition of equipment and installations use belonging to other telephone operators at prices that are not fair market value and equally offered amongst all wireless services providers.

3. Privatization and Competition

Following the economic crisis of the 1980s, the Mexican government's needs to comply with IMF loans and the increased need to liquidate nationalized assets that were creating increasing amounts of debt, resulted in the

privatization of the telecommunications sector. When Telmex was sold to Mr. Carlos Slim and foreign investors, the concession for Telmex was transferred over from the original concession from 1976 that carried a 50-year term expiring in 2026. Furthermore, the concession granted Telmex with a government approved monopoly for long distance telephony for the six years following its privatization.²⁴ The government's reason behind the decision to maintain the monopoly was that the government could maximize government revenues, restructure tariffs, and allow Telmex to expand the infrastructure throughout the country. The result was that Telmex was able to grab the customer base well ahead of any future competition, increasing the difficulty for new companies to enter a well-established market.

The overall idea behind the privatization of Telmex was that the government was unable to properly maintain the infrastructure for the countries local and long distance telephone service. In a free market with full competition, the market will not only enable growth to occur but the demand will also be a driver for reducing pricing. Monopolies, by their very nature lead to high pricing and provide little incentive to improve poor service. Thus, telephony pricing in Mexico, led by Telmex, has ranked among the highest in all the Organization for Economic and CO-operative Development (OECD) countries, while having the lowest penetration rates. Perhaps the one advantage to the nationalized monopoly is the challenge that a privatized fully competitive market has difficult with meeting obligations concerning universal service. While the ITU

²⁴ OECD, Policy Roundtables: Evidentiary Issues in Proving Dominance, June 2006, 144-147.

ranks Mexico as being fully competitive in all areas of telecommunications the reality is that as the dominant carrier in the country, Telmex, still holds a virtual monopoly despite the official end of its legalized monopoly in 1996.

4. Regional and International Agreements

As members of NAFTA, OECD, and the World Trade Organization (WTO), Mexico is legally bound to certain trade obligations that include obligations for the telecommunications sector. At the international level these agreements and trade organizations help to keep costs low so that the people in all parties might benefit from the agreements. For an individual company however, the increased competition and reduced pricing negatively affect profits, and sometimes the regulations are stretched or broken and disputes result. If the resolution cannot occur at the national level then the international organizations are brought to settle the disputes. The most notable dispute that hindered international long distance trade between Mexico and the United States concerned the ability to successfully regulate Telmex, whose dominant market share has made the ability of interconnections overly costly.

A report by the U.S. State Department's Bureau of Economic and Business Affairs in 2001 states that "lack of proper regulation of the dominant carrier, Telmex, and failure of the regulator to provide for cost-based interconnection at all technically feasible points on Mexico's network, including cross-border interconnection and International Simple Resale. Local, basic telephone service is technically open to competition, but practical

competition in this area has not developed."²⁵ The following year the United States filed a complaint to the WTO that Mexico's International Long Distance regulations were anti-competitive and above the average cost. The regulations at the time stipulated that U.S. telephone providers must interconnect with Mexico's network providers for inbound calls to Mexico, the rates of which were negotiated exclusively by Telmex on behalf of all Mexican providers. Furthermore, the regulations prohibited U.S. providers from obtaining leased lines to terminate calls into the local market. By March of 2004 the WTO ruled in favor of the U.S. to and in August 2005 Mexico changed its policy to comply with the WTO ruling.

E. INFRASTRUCTURE

1. Television

Television in Mexico commenced national broadcasting in 1950 with a single station that was founded by the inventor of the color television, Guillermo Gonzalez Camarena and on January 13, 1960 the Federal Radio and Television Law was passed to establish regulation and policy over television and update those for radio.²⁶ Like other areas around the world, Mexico's early television was broadcast via community antenna. By the 1970s, television was available for import from the United States and international broadcasting was made available. By the 1980s, cable television was

²⁵Bureau of Economic and Business Affairs, *2000 Country Reports on Economic Policy and Trade Practices: Mexico* March 2001.

²⁶ Congress United States of Mexico, *Ley Federal de Radio y Television*. Mexico City, MX, 19 January 1960.

introduced in Mexico's major cities. Despite the expanding technology, the country has been slow to adopt television, resulting in low penetration and subscriber rates. Today, television is primarily presented in three formats: cable, Multipoint Microwaves Distribution (MMDS), and Direct-To-Home (DTH) Satellite. Aside from these three formats, IP based television is starting to enter the market, and is predicted by Communications, Engineering, and Design Magazine to add approximately 2.3 million subscribers by 2012. The IPTV drive is expected to push further growth by creating competition, but it is not likely to play a dominant role in the market. As a result of this increased competition, it is also expected that cable and satellite companies will push to increase penetration.²⁷ As seen in Figure 3, cable television, which is led by Televisa, continues to dominate the market; however, the greatest growth has been seen in DTH satellite service.

²⁷ Brian Santo. "Latin American pay-TV penetration set to double by 2012." *CED Magazine*. 7 April 2008.

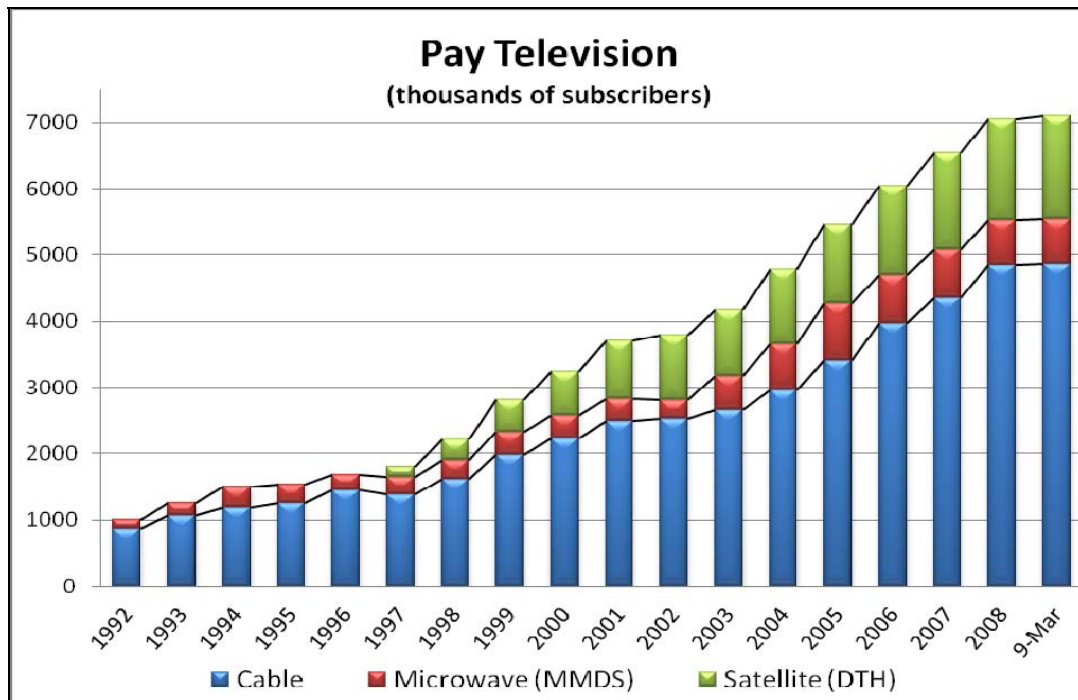


Figure 3. Mexico Pay Television Growth²⁸

2. Fixed Line Telephone

Despite the widely debated and protested methods employed following the privatization of Telmex, the data indicates that infrastructure has indeed improved and fixed line telephone service has significantly increased in distribution, as evident by the data in Figure 4. At the end of 1990, the data indicates that Telmex provided approximately 5.3 million subscribers with fixed line service and by the end of 2008 an estimated 20.7 million subscribers were receiving fixed line service.

²⁸ Compiled from COFETEL data.

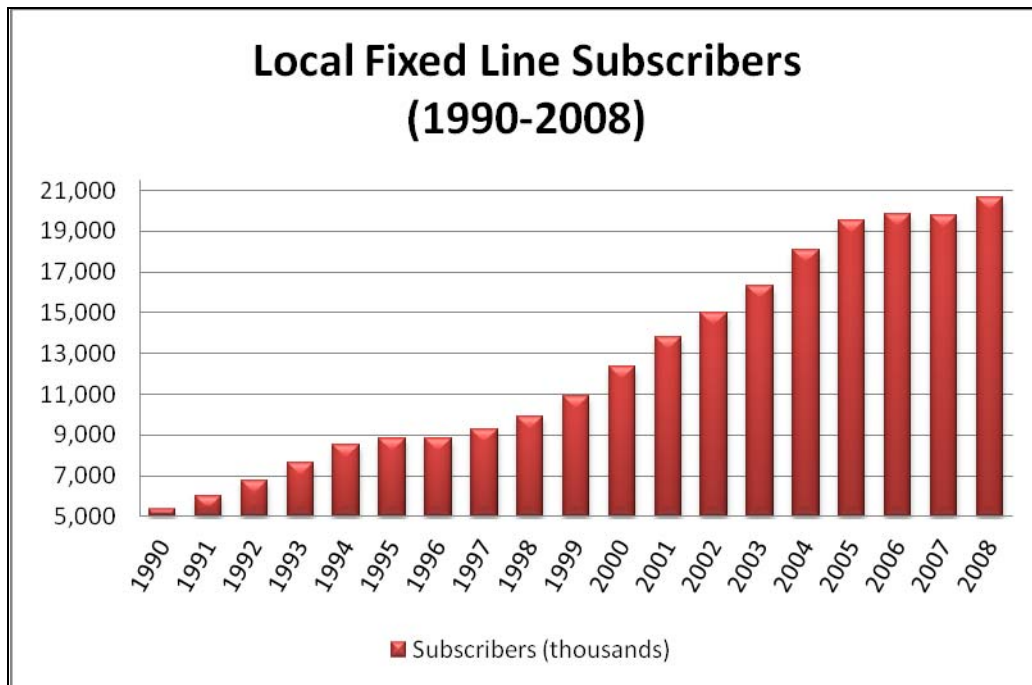


Figure 4. Post-Privatization Teledensity²⁹

While there were large increases in the number of subscribers, the overall teledensity of Mexico grew only 6.4% from 1993 through 2008.³⁰ Recent years have shown that the teledensity in Mexico has continued to rise, and while keeping it within one percentage point of the world average in the years following, Telmex's privatization teledensity was between three and four percent below, and required several years before the pace accelerated. Policy changes that have resulted in reduced interconnection costs, have also driven an increase in Mexico's teledensity since 2005. A unique factor however is how Mexico's teledensity continues to rise along with many of the Latin America's other countries with teledensity levels greater than 4% below the world average. The United States and Latin

²⁹ Compiled from COFETEL teledensity data.

America's high teledensity countries have actually experienced reduction in fixed line teledensity since about the 2000-2001 timeframe brought on by the increase in of mobile communications.

3. Mobile Telephones

As the mobile communications market in Mexico commenced to accelerate, a few key events occurred during this timeframe. In September 2000, Mexico's largest telecommunications company Telmex split, and two new companies emerged: Telmex and América Móvil. Once the mobile communications division of Telmex became América Móvil, it began operating autonomously as a separate mobile communications company, and according to Mexican law, was subject to different regulations. Furthermore, in the years following, many international telecommunications companies chose to sell their positions in overseas markets to better their financial situation amidst economic troubles. América Móvil, using this to their advantage, acquired many of these positions, and with them, newer and improved technologies that could be implemented throughout the América Móvil Enterprise. Having the dominance in Mexico's mobile communications market, Telcel, América Móvil's subsidiary in Mexico was provided with a large competitive advantage that it continued to exploit, enabling it to increase subscribers throughout Mexico. As a result, from 1999 until 2008, Mexico saw an increase of approximately 6.5 million additional subscribers annually, the bulk of which were part of Telcel.

³⁰ ITU, ICT Statistics, 2008.

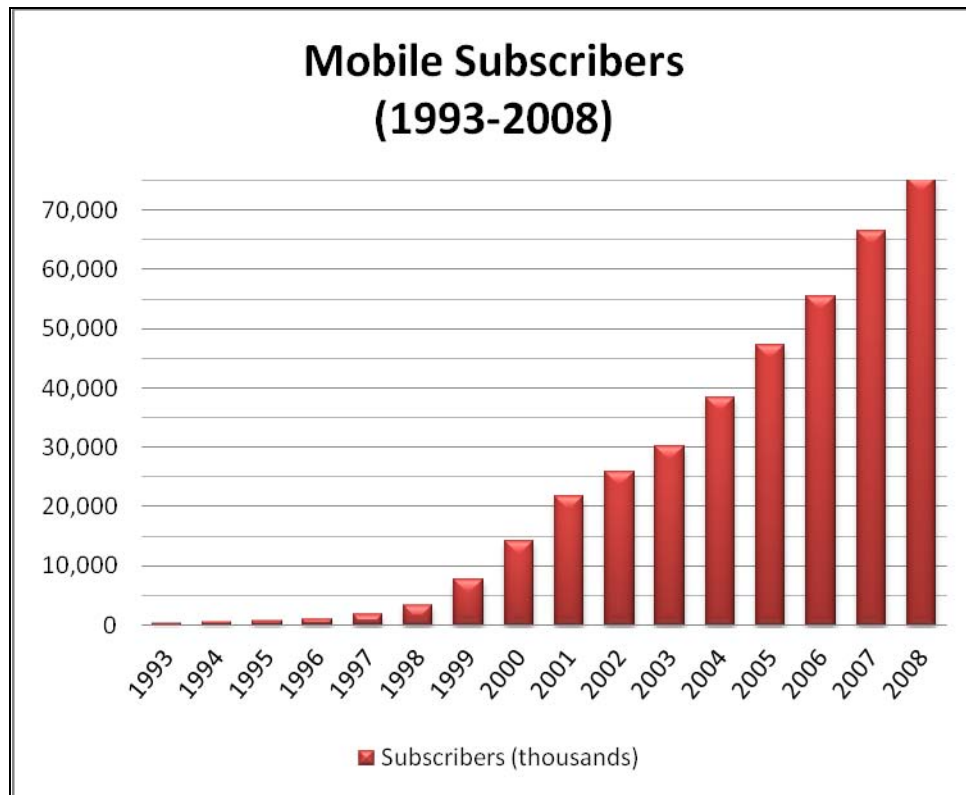


Figure 5. Mexican Mobile Subscribers, 1993-2008³¹

4. Internet

With the major telecommunications companies' efforts to have dominance in the telephone and mobile communications throughout Latin America, it appears to have fallen behind in the Internet comparatively. A possible cause for the Internet's slow start in Mexico, is the high rate for per-minute billing, or the limited number of unlimited minute calls, that existed throughout the 1990s, and arguably, as recent as 2005. The early Internet primarily driven by dial-up service, was left to the side for the average user at home and instead the rise of Internet cafes became much more prevalent throughout Mexico as in much of Latin America

than in the United States. Figure 6 illustrates the growth of subscribers throughout Mexico. As defined by the ITU subscribers include dial-up, DSL, and fixed broadband Internet, bearing in mind that one household or café (subscriber) could service several users.

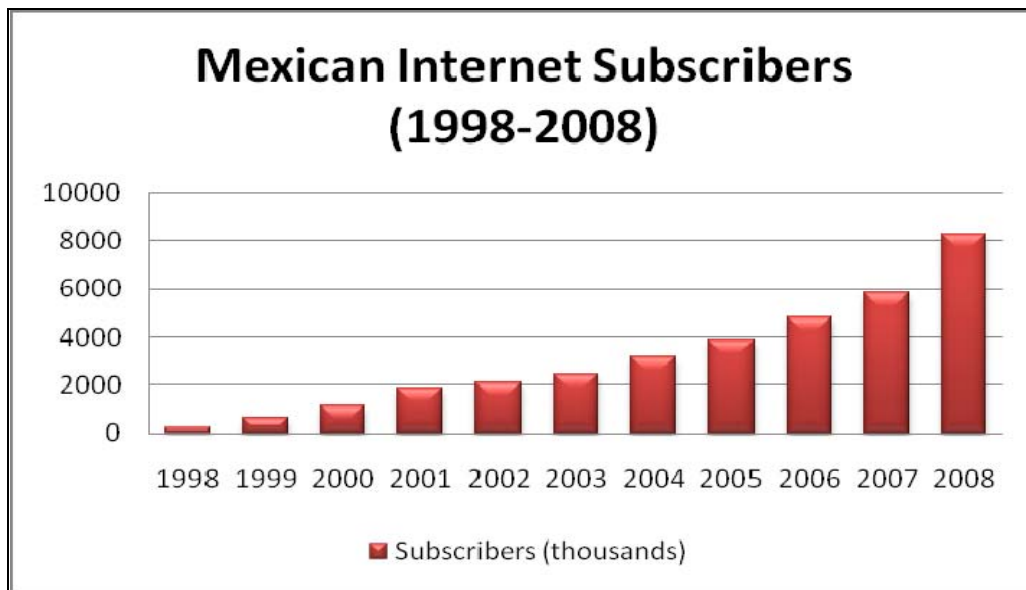


Figure 6. Mexican Internet Subscribers, 1998-2008³²

The disparity in income further drives the need in Mexico and other Latin American countries to use Internet cafes, which also creates a disparity in the number of users and the number of subscribers. In a country with a population of approximately 108 million, the overall percentage of subscribers is very low with an estimated 7.6% of the population in comparison to the world percentage of 8.2% as of 2008. With this estimate, the number of considered users is at approximately 23.5 million resulting

³¹ Compiled from ITU statistics.

³² Compiled from ITU statistics.

in a percentage of 21.4%, Mexico continues to fall behind the world average of approximately 23.1%.³³ Despite the lower comparative number Mexico continues to have considerable more users than subscribers. Figure 7 illustrates the disparity explained.

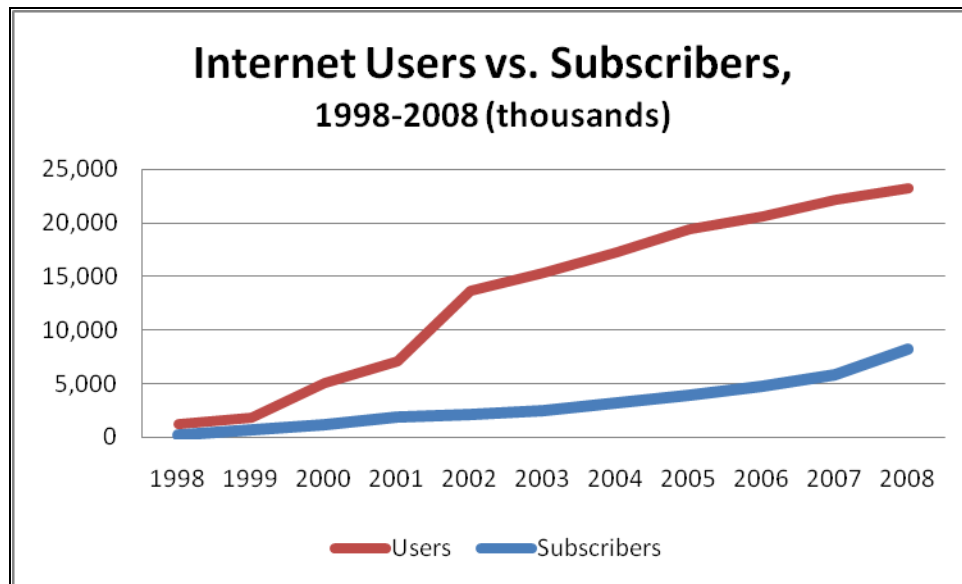


Figure 7. Mexican Internet Users vs. Subscribers, 1998-2008³⁴

F. CONCLUSION

Mexico's telecommunications market continues to grow as a whole considerably better than other areas of Latin America. Mexico regulatory practices and policies since the liberalization of the telecommunications sector have undergone reforms that appear to be making significant changes that will bring it further. Its initial policies

³³ ITU ICT Statistics, 2008.

³⁴ Compiled from ITU statistics.

following the privatization of Telmex may have hindered the growth of telecommunications in Mexico, despite the company's personal growth as will be explored in another chapter. Furthermore, political and social factors that have been driving factors in the high levels of inequality throughout Mexico, have continued to pose challenges in the continued growth of the market, despite the creation of unique ideas and technologies to enable low income people to use telecommunications at more manageable rates. In spite of the negative points in its past and large obstacles that must be overcome, the overall outlook for Mexico's telecommunications growth is positive. Mexico will continue to grow, and as the results of reforms, provide further evidence that will show a continued positive trend.

III. CARSO GLOBAL TELECOMMUNICATIONS: THE TELMEX AND AMÉRICA MÓVIL REVOLUTION

Technology does not open roads; it creates important bridges, but it is in us to want to cross them.

-Carlos Slim Helú

A. INTRODUCTION

Carso Global Telecommunications (CGT) was established on June 24, 1996 as a holding company when Grupo Carso was divided, separating its entire telecommunications companies from it.³⁵ As a holding company, the company has no actual employees; only a board of directors that manages shares of stock in a number of telecommunications companies. The board of directors' role, however, directly impacts the many thousands of employees that are employed by each of the companies it controls. Within its portfolio of stock, CGT is the controlling shareholder in a variety of Latin American telecommunications companies, including América Móvil, Telmex and Telmex International. As the controlling shareholder, CGT not only has the deciding voting rights but through the leadership roles in common is also indirectly control of the operations of its companies. While its holdings include many companies, this case study will focus on Telmex, and Telmex International and América Móvil, because they have provided the greatest impact to Latin America's telecommunications.

³⁵ Carso Global Telecom. <http://www.cgtelecom.com.mx/Ingles.html>.

Through its Telmex subsidiary, CGT provides telecommunications services throughout Mexico that include landline telephone service, mobile network interconnection, long distance interconnection, and data communications services. Telmex is currently Mexico's leading telephone company in terms of subscribers, infrastructure, and revenue, operating in a virtual monopoly. In December 2007 Telmex International was formed by the division of Telmex and with the aim to manage all of Telmex's non-Mexico infrastructure and services with the exception of its Yellow Pages services in Mexico. Through its Telmex International subsidiary, CGT provides telecommunications services by means of local subsidiaries in Argentina, Brazil, Chile, Colombia, Ecuador, Peru, United States, and Uruguay that include landline telephone service, long distance interconnection, data communications, television service, and prepaid telephone cards.³⁶ Telmex's mobile service division, América Móvil, administratively separated in September 2000. América Móvil's infrastructure and capital were sufficient to enable it to stand on its own and as of December 2001, was no longer held by CGT. While no longer a part of CGT, América Móvil is the market leader in mobile communications and ranks in 16th among Fortune 500's Telecommunications Industry and 273rd among Fortune 500's Global companies.³⁷

To obtain a better understanding of the CGT Empire, the man behind the corporation must be better understood. That man is Carlos Slim Helú, the world's third wealthiest person

³⁶ A full list of Telmex and Telmex International subsidiaries can be found in the Appendix.

³⁷ "Fortune Global 500: The List." *Fortune*. VOL. 160, NO. 2-20 July 2009.

with a net worth of approximately \$35 billion according to Forbes Magazine³⁸ and the founder of CGT, Grupo Carso, and the owner of several other critical companies throughout Mexico's key industries. Though officially retired, Mr. Slim maintains an active presence in the companies that are presently run on a day-to-day basis by his children and their families. His personal philosophy is that of keeping things within the family and has even taken this philosophy to the workplace not only in the employment of family members but also in that his variety companies throughout various sectors give preferential treatment to each other amongst themselves.

B. CARLOS SLIM HELÚ, THE TELECOMMUNICATIONS MONARCH

Carlos Slim Helú was born in 1940, the fifth of six children to be born to an entrepreneurial Lebanese immigrant, Julién Slim Haddad, and Linda Helú, also of Lebanese decent. Close family ties and community drew the family together; however, as an entrepreneur and businessman from an early age, Julién Slim focused his children towards mathematics and business knowledge from early childhood. He provided each with a weekly allowance that they were required to maintain accountability for in a ledger that he had given them. Carlos Slim's first business venture would also come at an early age—buying stock in the National Bank of Mexico at the age of 12.

³⁸ Luisa Kroll, Matthew Miller and Tatiana Serafin. "The World's Billionaires," *Forbes*. 11 March 2009.

As a civil engineer student while in college, he taught Algebra and Linear programming, and following graduation, started his own brokerage firm. Through this firm, Mr. Slim commenced purchasing other companies in various fields, including construction, mining, tobacco, and retail stores, which would eventually come under the name Grupo Carso. In the 1980s, world economic crisis brought downfall to many companies, and especially in Mexico. Mr. Slim seized the opportunity to purchase many companies that were in financial trouble, considerably increasing the Grupo Carso portfolio. By the late 1980s, Mexico's continued downward spiraling economy and ever-increasing inflation was causing many of the government's nationalized industries to be privatized and sold. Among them was Telmex, which was acquired by Grupo Carso, Southwestern Bell, and France Telecom.

Though many questions have been brought up concerning the legality of the sale of Telmex and the actual amount of payment that followed, one thing remains with little dispute: despite its near virtual monopoly, Telmex, since 1990, has managed to grow at an increasing rate throughout Mexico and Latin America as a result of Mr. Slim's leadership. His particular specialty of finance and business combined with his engineering background aided in his leadership within Telmex. Following the control of fixed line communications, Mr. Slim focused his efforts on Telmex's mobile division that was struggling to reach customers. Like the United States, early Mexican mobile communications only provided monthly billing options. Mr. Slim's business shrewdness showed him that the Mexican people, particularly the middle to lower income people,

would dismiss mobile communications, as a result of its high cost to maintain. To solve this problem and increase mobile subscribers, Mr. Slim brought mobile prepaid service to Mexico. Requiring a higher cost to purchase the phone, but complete control over a set of minutes that would not expire at the end of each month, and could be recharged through the purchase of a calling card many people suddenly found themselves more economically able to purchase means of mobile communications. The demand for mobile communications increased significantly and the Telmex mobile division prospered under his guidance. Today, that division, América Móvil, stands as the leader in Latin America's mobile telecommunications. Telmex, a virtual monopoly in Mexico with its sister company, Telmex International, is making formidable strides in the telecommunications of many other nations throughout Latin America, and even in the United States.

As can be found on his personal Web site, Mr. Slim's leadership style can be summarized by looking at his ten principles of business:

1. Create an organizational structure with simple, minimal hierarchies; provide personal development and in-house training for executives; maintain flexibility and a rapid decision-making capability; leverage the advantages of a small company and use these to grow and excel.
2. Maintaining austerity in good times strengthens profits and accelerates the development of the company, and averts the bitterly drastic adjustments in times of crisis.
3. Stay focused on modernization, growth, training, quality, simplification and the continuous improvement of production processes. Increase productivity and competitiveness; reduce costs and expenses by using global benchmarks.

4. Companies should never be limited by the size of the owner or manager. Do not be a big fish in a small pond. Minimize investment in non-productive assets.
5. There is no challenge that we cannot overcome by working together with clear objectives and knowing the tools we have at our disposal.
6. Money that leaves the company evaporates; this is why we reinvest profits.
7. Corporate creativity is not only applicable to business, but also to solving many of society's problems. This is what we do through the Group's Foundations.
8. Firm and patient optimism always yields its rewards.
9. All times are good times for those who know how to work and have the tools to do so.
10. Our premise is, and has always been, that we leave with nothing; that we can only do things while we are alive, and that businessmen are creators of the wealth they temporarily manage.³⁹

C. TELMEX AND TELMEX INTERNATIONAL

World telecommunications have significantly changed in the past two decades, and most certainly throughout Latin America. Telmex's privatization in 1990 delivered a state controlled monopoly into the hands of Carlos Slim Helú with the backing of SBC Communications and France Telecom. It brought with it a comparatively few number of subscribers and a lot of infrastructure that was in need of updating and repair. Government owned Telmex was not invested in properly and as a result was using electromechanical, analog and other obsolete equipment in its operations, transportation, physical plant and maintenance

³⁹ Carlos Slim Helú. "From his thoughts."
<http://www.carlosslim.com/desde_ing.html>.

infrastructure, was using manual recordkeeping methodology, and only a 360-kilometer fiber optic network. Despite the company's shortcomings, its relatively inexpensive price to purchase from the government, extensive backbone, and established monopolization of the Mexican telecommunications market made it an irresistible investment that could prove extremely profitable once additional investments were made for improvements. Over the course of the next two decades, Telmex would invest over \$30 billion.

Telmex holds several tenants in its code of ethics that govern its philosophy and have aided in maintaining market dominance in Mexico, while expanding significantly abroad. Telmex's mission is "To be a leading telecommunications group by providing our customers with integrated, high-value, innovative and world-class solutions, through human development and the application and management of state-of-the-art technology." Telmex's vision is:

To consolidate Telmex's leadership in the domestic market, expanding its telecommunications service penetration in all possible markets and be recognized as one of the best and fastest-growing companies in the world.⁴⁰

These two tenants, derived by Mr. Slim, have driven an accelerated rate of growth that has increasingly made competition near impossible in Mexico's market and the same philosophy has been taken overseas. While Mr. Slim is officially retired and no longer an official member of the board at Telmex, he holds the title "Honorary Life Chairman," a position he also holds at CGT and América

⁴⁰ Telmex, Code of Ethics (Mexico City, Mexico, November 2006).

Móvil, and continues in an advisory role to his successors and the current board of directors.

With his voting power, Mr. Slim has positioned the key leadership in Telmex to be his family and close friends. Family members that hold critical positions are: Carlos Slim Domit (Telmex Chairman of the Board - Carlos Slim Helú's eldest son) and Héctor Slim Seade (Telmex Chief Executive Officer—Carlos Slim Helú's nephew), while his other two sons, Patrick and Marco Antonio, are Board Members of Telmex. Additionally, Arturo Elias Ayub and Oscar Von Hauske Solis are Carlos Slim's sons-in-law and also hold key positions on the board of directors. Through this familial control, the tenants of rapid expansion and market monopolization are factors that appear likely to continue.

Telmex's demand for growth and elimination of competition has created the largest telecommunications empire in Latin America. Figure 8 shows Telmex's overwhelming reach as it has sought to globalize, providing public, residential, and business telecommunications services in Argentina, Brazil, Chile, Colombia, Ecuador, Peru, the United States, and Uruguay outside of Mexico.



Figure 8. Telmex and Telmex International Presence.
(After telmex.com, 9 May 2009)⁴¹

As Telmex continued to grow throughout the years its Mexican telephone service expanded to other area of service and location. These new developments prompted Telmex to create sister companies América Móvil, and Telmex International with their individual subsidiaries. Along with these sister companies the parent company of CGT has a telecommunications presence throughout 17 countries in the Western Hemisphere providing a wide range of telecommunications services.

⁴¹ Information compiled from <http://www.telmex.com/mx/>.

Telmex commenced as the primary service provider of local and long distance telephone service in Mexico. As cellular telephones increased in popularity, Telmex expanded to the cell phone market as well, operating under Telcel in Mexico. Telcel later grew to become a part of the sister company, América Móvil. As the Internet revolution came about, Telmex also commenced providing dial-up and broadband Internet access. To increase its portfolio in the computer market, Telmex acquired Prodigy and CompUSA to enable better penetration in this field. While Mexican law prohibits the bundling of services to include television, Internet, and telephone, Telmex does bundle residential telephone, and Internet service with an approximate 90% of its lines capable of supporting multiple service options. As of March 31, 2009 Telmex controlled 17.6% of Mexico's telephony market share, consisting of 17.51 million lines, 5.52 million broadband service, and 177,000 dial-up service.⁴² Telmex International, however not limited by such restriction in some countries does provide the "triple-play" service consisting of Cable television, telephone, and Internet access. Other services that Telmex Mexico and Telmex International also provide are: prepaid calling cards sales, and prepaid cell phone service. A complete list of Telmex and Telmex International's services and tele-presence is provided in Figure 9.

⁴² Telmex. First Quarter 2009 Earnings Report.

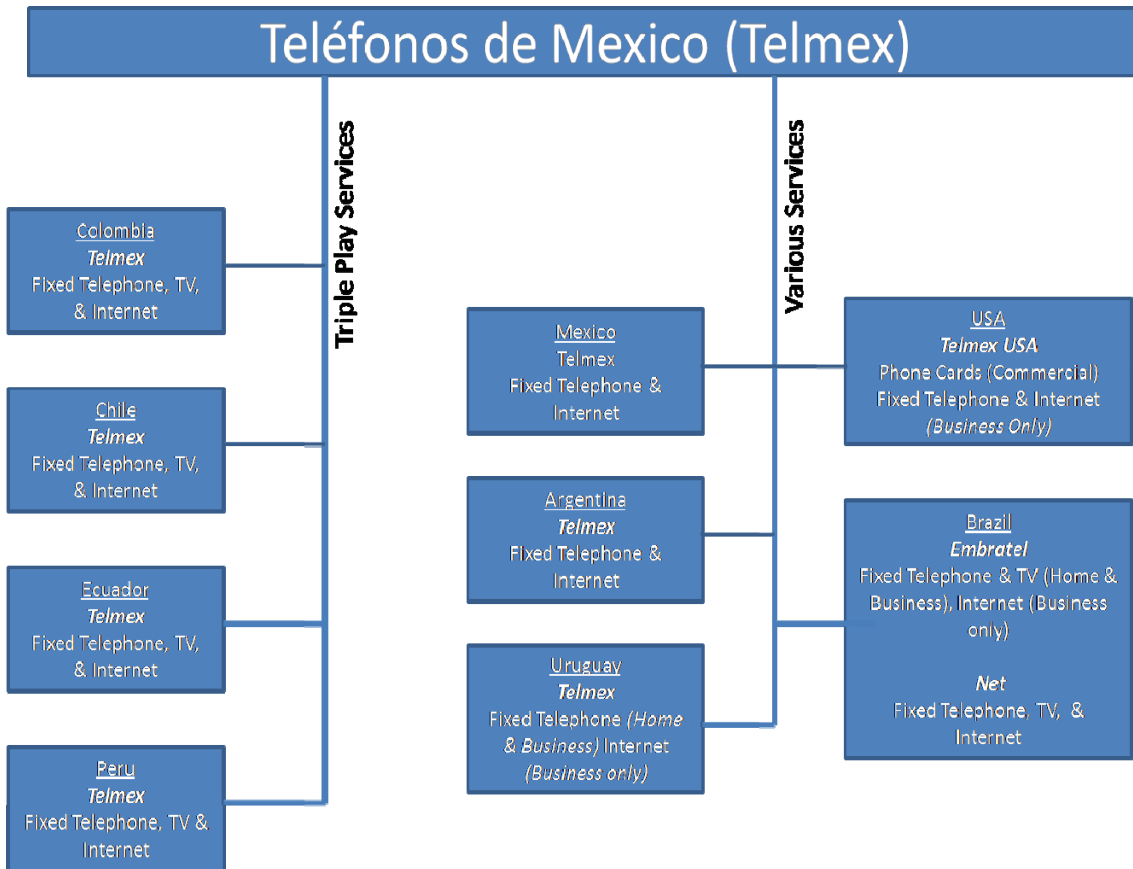


Figure 9. Telmex Presence by Service Provided.⁴³

Telmex's greatest risk is that of governmental restructuring of policy and regulation. Current government policy and regulation have allowed Telmex to remain as a virtual monopoly, permitting Telmex to grow all but unchallenged. Changes in the presentation of media are another risk for Telmex. As media changes Telmex could choose to follow a new technology that might not make it or another technology might surpass it if Telmex does not exploit the new technologies before its competition does, an error it has not made thus far. IP Television and Voice over IP are two such examples. IP television could be an

⁴³ Information compiled from <http://www.telmex.com/mx/>.

avenue for Telmex with its existing infrastructure and Internet customer base to enter a service that meets national laws, while enabling a form of the "triple play service." Current long distance, especially international calls have dropped largely in part to VOIP.

Future prospects for Telmex do not indicate that Telmex will have much room for uninterrupted growth throughout Mexico, while its greatest potential source remains outside its national borders operating as Telmex International. As VOIP technology becomes more readily available reduced calling over fixed lines will cause decreased revenue as seen in the Telmex's first quarter earnings report 2009. Further complications will be added by a weakened global economy, as services such as cable television are among the first luxury items people eliminate in difficult times.

D. AMÉRICA MÓVIL

Breaking away from Telmex in September of 2000, América Móvil was formed as a separate entity to operate throughout Mexico and particularly overseas, as it took with it a vast portion of Telmex's overseas investments. Ultimately, however, the decision for the two companies to become separate entities was made, because Mr. Slim believed that through splitting the cellular division, the two newly restructured companies could both be better managed and better capable to compete in their own markets. The 2000 image of América Móvil is but a fraction of what the telecommunications giant has grown to be today. At its creation date, América Móvil consisted of approximately 10.1 million subscribers in four countries, approximately 89% of which were in Mexico.



Figure 10. América Móvil Telecommunications Presence.
(After americamovil.com, 9 May 2009)⁴⁴

América Móvil operates in Argentina, Brazil, Chile, Colombia, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Nicaragua, Paraguay, Peru, Puerto Rico, Uruguay, United States, and Mexico with an approximate 182.7 million subscribers.⁴⁵ By comparison, the United States' top two wireless carriers, Verizon Wireless and AT&T Wireless, had 72.1 million subscribers⁴⁶ and 77 million subscribers⁴⁷ respectively as of December 31, 2008. Furthermore, according to the ITU, the combined total of all

⁴⁴ Information compiled from <http://www.americamovil.com>.

⁴⁵ América Móvil 2008 Annual Report.

⁴⁶ Verizon Communications, 2008 Annual Report, 18.

⁴⁷ AT&T, 2008 Annual Report, 9.

U.S. based wireless carriers is approximately 270.5 million subscribers.⁴⁸ Over the past seven years, América Móvil has increased its number of subscribers at an average rate of approximately 28% and has become Latin America's largest wireless telecommunications company and the world's third in terms of equity subscribers. América Móvil has made huge advances in a relatively short period, and overcome many obstacles to get to where it is today. While there is no individually identifiable reason that has enabled its growth to dominate in the Latin American telecommunications market, several principle factors can be attributed to the continued success of its rapid rate of growth. Among these reasons, América Móvil has been able to capitalize on many countries' economic trouble to acquire many companies throughout South and Central America. To further the ease of acquisition, América Móvil managed to exploit the telecommunications companies that sought to bail out of many overseas markets in efforts to recover from the post 2000 stock market drop.

Though its primary means of growth in the Latin American market has been through the very aggressive acquisitions of struggling mobile communications companies, it has managed to attract many subscribers through its continued push of the pay-as-you-go model of mobile communications. The great amount of inequality existing in the Latin American society, made mobile communications a luxury that was not available to the largest segment of many of the countries' populations. The pay-as-you-go model enabled the lower income segments of society to buy what minutes they could afford at prepaid rates and recharge as

⁴⁸ ITU, 2008 ITU ICT Statistics Database.

necessary, thereby liberating them from costly commitments. While this model is a great way to attract new subscribers, it is not necessarily the best way to keep them as increasing competition requires improvised methods to reduce rates.

In the United States, a phone call from a cell phone to a landline is no different in terms of cost than that of a landline-to-landline phone call. In Latin America, this has been different, with very high connection rates from the mobile-to-land, or vice versa connections, slowing the growth of the Latin American mobile market. Through a series of further acquisition and expansion, however, América Móvil has also increased its portfolio to include approximately four million landlines in Central America and the Caribbean, enabling it to offer free connection within its fixed and mobile line networks as a means to attract greater market positions in these countries. This connection-free strategy has also been adopted in other countries where telecommunications services are available, through both América Móvil and Telmex, or Telmex International.

Table 5 displays América Móvil's countries where wireless and fixed services are made available—Central America and the Caribbean. Despite nearly 5 million more subscribers in the Central American region than the Caribbean region, and a population of almost double, it is interesting to note that the revenues in the Caribbean region account for almost \$600 million more. These are primarily driven from the increased percentage of billing subscribers as opposed to prepaid subscribers.

América Móvil Fixed & Wireless Services

El Salvador Guatemala Honduras Nicaragua	Telecom, Telgua & Enitel	
	Fixed Market Penetration:	20%
	Fixed Market Share:	66%
	Services:	Voice, Internet, Data, TV
	Claro	
	Wireless Market Penetration:	84%
	Wireless Market Share:	34%
	Frequencies:	1900 MHz
	Services:	Voice, Data

Dominican Republic Jamaica Puerto Rico	Codetel & Puerto Rico Telephone Co.	
	Fixed Market Penetration:	9%
	Fixed Market Share:	89%
	Services:	Voice, Internet, Data
	Claro	
	Wireless Market Penetration:	76%
	Wireless Market Share:	40%
	Frequencies:	850-1900MHz
	Services:	Voice, Data

Table 5. Central America and Caribbean Services.⁴⁹

Billing services clearly account for a large percentage of the revenues made through the mobile telecommunications market. While the business model for América Móvil has been to introduce its services it is perhaps its next step to seek increased billing plans. América Móvil currently provides mobile prepaid and billing services throughout all its overseas markets with the exception of the United States where it only provides prepaid wireless services under the subsidiary Tracfone. As the world's largest consumer it would appear that the United States would be an opportune location to expand billing plan services, however unlike Latin America, América Móvil faces very difficult competition against long established providers.

⁴⁹ Compiled from: América Móvil 2008 Annual Report, 14 and http://www.americamovil.com/index_eng.htm.

América Móvil Wireless Services

Mexico	Telcel		USA	Tracfone	
	Wireless Market Penetration:	71%		Wireless Prepaid Market Penetration:	12%
	Wireless Market Share:	72%		Wireless Prepaid Market Share:	28%
	Frequencies:	850-1900MHz		Frequencies:	850-1900MHz
	Services:	Voice, Data		Services:	Voice, Data
Colombia	Comcel		Ecuador	Conecel	
	Wireless Market Penetration:	95%		Wireless Market Penetration:	88%
	Wireless Market Share:	67%		Wireless Market Share:	71%
	Frequencies:	850-1900MHz		Frequencies:	850 MHz
	Services:	Voice, Data		Services:	Voice, Data
Brazil	Claro		Peru	Claro	
	Wireless Market Penetration:	78%		Wireless Market Penetration:	66%
	Wireless Market Share:	26%		Wireless Market Share:	39%
	Frequencies:	850-2100 MHz		Frequencies:	1900 MHz
	Services:	Voice, Data		Services:	Voice, Data
Chile	Claro		Argentina Paraguay Uruguay	Claro	
	Wireless Market Penetration:	95%		Wireless Market Penetration:	108%
	Wireless Market Share:	19%		Wireless Market Share:	32%
	Frequencies:	850, 1900 MHz		Frequencies:	850, 1900 MHz
	Services:	Voice, Data		Services:	Voice, Data

Table 6. America Móvil Wireless Services.⁵⁰

On February 7, 2001, América Móvil began trading on the New York Stock Exchange under the ticker symbol AMX at \$6.79 (3 to 1 split adjusted), and as of August 11, 2009, it traded at \$45.62. Compared to China Mobile and Vodafone,

⁵⁰ Compiled from: América Móvil 2008 Annual Report, 14 and http://www.americamovil.com/index_eng.htm.

the only two wireless telecommunications companies larger than América Móvil, its percentage rise far outpaces both of these companies and the Dow Jones Industrial Average with a rise of approximately 591%.



Figure 11. América Móvil share price February 2001–August 2009 (From finance.yahoo.com, 12 August 2009)⁵¹

América Móvil's greatest risk is that of the potential for economic downturns in the Latin American economy, specifically, the economies of Mexico and Brazil, which make up approximately 59.4% of its total revenue. América Móvil will also face great risk with antitrust issues, particularly in Central America, where it holds a virtual monopoly on fixed lines in El Salvador, Guatemala, Honduras,

⁵¹ Yahoo Finance.

<http://finance.yahoo.com/echarts?s=AMX#chart6:symbol=amx;range=my;indicator=splitt+volume;charttype=line;crosshair=on;ohlcvalues=0;logscale=on;source=undefined>.

and Nicaragua. At the close of 2008, the Mexican antitrust commission was also in the process of issuing preliminary findings as América Móvil's Telcel subsidiary to be dominant in the end-user segment of wireless communications.

Despite concerns with antitrust and potential continued legal battles with various national regulatory bodies, América Móvil appears to have a solid outlook. With large populations and continued growth in both Mexico and Brazil, these countries appear, at least in the immediate future, to be solid investments with expected increased subscribership. Throughout most of Latin America, the disparity between the wealthy and poor is great, causing instability in economic outlooks, but América Móvil has managed to target both the wealthy and poor alike through its broad range of options. Furthermore, its continued acquisition of mobile companies, has left people seeking mobile communications with few choices in selecting mobile service providers.

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IV. COLOMBIA



Figure 12. Political Map of Colombia. (From Maparchive.org, February 2009)⁵²

⁵² The Map Archive, "Colombia (Political) 2001," 12 April 2007, http://www.maparchive.org/details.php?image_id=109&sessionid=e636564a7546f0ffbc32a296d333a00e.

A. INTRODUCTION

Located in the northwest corner of the South American continent, Colombia has played a strategic role in the economic, political, and technological development of the Latin American region. The country shares its northern border with present-day Panama, serving as a gateway between South and Central America. Despite a section of approximately 80 km where the Pan American Highway is disconnected, ground transportation remains very high and shipping from critical ports on both coasts ensure a continuous flow of goods and services. In Colombia's early development, the Andean Mountain range in the Northwest and center of the country as well as the Amazon Rainforest in the Southeast presented difficult challenges to overcome the implementation of the nation's infrastructure, but the topographic disadvantage was overcome enabling progress to continue.

While overcoming challenges, the early development of Colombia's infrastructure moved forward with minimal problems until the mid 1960s, when the Colombian Communist Party's military faction formed the Fuerzas Armadas Revolucionarias de Colombia (FARC—the Revolutionary Armed Forces of Colombia). With the increased strength of the FARC and the subsequent increase in kidnappings, extortions, and the illegal drug trade conducted to finance their war, much infrastructure was destroyed, foreign investment slowed and in some cases ceased. A member of the U.S. Department of State (U.S. DOS) Foreign Terrorist Organization List, the FARC is considered a terrorist group by several nations. It achieved its strength and greatest impact on the country in

the 1980s and 1990s, the FARC's progress has since been diminished with the United States' efforts to engage in the war on drugs and aid the Colombian military in eliminating the FARC. The joint intervention effort over the years has brought greater stability to the country and helped to establish resurgence in foreign investment resulting in increased development in many sectors of the economy, including the telecommunications sector.

The development and adoption of telecommunications in Colombia, commenced in a similar manner as other nations in Latin America. Shifting policies between privatization and nationalization, and monopolies and full competition, have been common themes throughout its history. Also like other nations, innovations and investments from foreign capitalists were often what started a technological shift or boom in Colombia. The primary telecommunications investors in Colombia's recent history that have helped to fuel the country's most recent surge in growth have been the United States' Verizon and AT&T, Spain's Telefonica, and Mexico's Telmex and América Móvil. In the recent decades, Colombia has seen significant growth in the telecommunications industry, with a remarkable 49.2% increase in cellular telephone subscription in the past five years⁵³, and achieving the highest cellular telephone teledensity in Latin America in 2005.⁵⁴ Colombia's telecommunications policy and regulatory reforms, enabling the liberalization of the sector, allowed for greater market penetration and the exploitation of the developing technologies in the

⁵³ ITU World Telecommunication Indicators, ICT Indicators Database 2007.

⁵⁴ Library of Congress—Federal Research Division Country Profile: Colombia, February 2007.

industry. Furthermore, the change in policy and regulation has enabled the industry to be more investor friendly, encouraging the foreign investment in an otherwise higher risk area of the world.

B. BACKGROUND

1. Timeline of Significant Events

Significant Events in Colombian History	
1819	Colombia gains independence from Spain. Simon Bolivar establishes Gran Colombia and becomes first Colombian president.
1830	Ecuador and Venezuela leave Gran Colombia to become independent countries.
1853	Colombia abolishes slavery.
1899-1902	Civil War - The War of the Thousand Days.
1903	Panama secedes from Colombia with U.S. backing. U.S. gains control over Panama Canal Zone.
1922	U.S. pays Colombia \$25 million for the loss of Panama.
1939-1945	Colombia helps the U.S. to keep the Panama Canal open during World War II.
1948-1957	Second Civil War. 250,000-300,000 killed.
1965	Leftist National Liberation Army (ELN) founded.
1966	Revolutionary Armed Forces of Colombia (FARC) established.
1989	U.S. begins supplying Colombian government with military equipment to assist war on drugs.
1993	Pablo Escobar, Medellin drug-cartel leader, killed while trying to evade arrest.
Nov-98	President Pastrana grants FARC a demilitarized safe haven the size of Switzerland in the southeast to help move peace talks along.
Jul-00	President Pastrana's "Plan Colombia" wins almost \$1 billion in military aid from the U.S. to fight drug trafficking and rebels who profit and protect the trade.
2002	Alvaro Uribe Velez elected Colombian president.

Table 7. Significant Events in Colombian History⁵⁵

⁵⁵ Compiled from Various Sources.

2. Country Overview

In 1810, a country known as Gran Colombia, consisting of modern day Colombia, Ecuador, Panama, and Venezuela, declared its independence from Spain. Today, the Republic of Colombia is a country approximately 1.6 times the size of Texas with a population of about 46.2 million people.⁵⁶ Colombia borders Venezuela to its East, Brazil to its Southeast, Ecuador, and Peru to its South and Panama to its Northwest. Colombia's largest city, Santa Fe de Bogotá—the country's capital, has a population of approximately 7 million people and is in the center of the country located in a plateau valley of the Andes Mountains at an altitude of approximately 8700 feet.

Boasting vast geographic diversity, Colombia's most prominent geographical features are the Amazon Rainforest to the south and southeast, which make up approximately 60 percent of Colombia's land area, the Andean Mountain Ranges and highlands in the center, and flat coastlands along the Caribbean Sea and the Pacific Ocean (Figure 13). With such geographic diversity, many challenges have presented themselves, especially transportation and communication between the major cities of the country. Like Bogotá, all the large cities in the central area of the country are located in the valleys of the Andean Mountain Range, and the large cities located on the coasts were surrounded by the rainforest and jungle. The country's major ports on both the Pacific and Caribbean coasts have played vital roles in the development of the country. While the Pacific coast has

⁵⁶ CIA World Factbook 2008.

the single primary port of Buenaventura, the Caribbean Coast distributes its flow of goods through the three primary ports of Cartagena, Santa Marta, and Barranquilla.

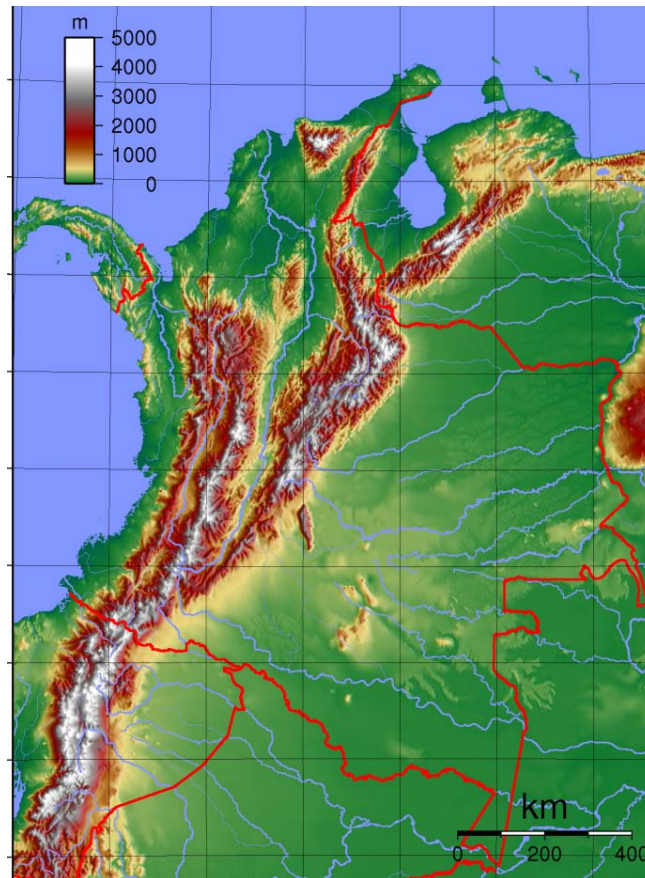


Figure 13. Colombian Terrain (From discovercolombia.com, 1 July 2009)⁵⁷

Today, these same major ports continue to play vital roles in the economic development and livelihood of Colombia. Like most of Latin America, Colombia's number one import and export partner is the United States, exporting primarily coffee, tropical fruits, flowers, emeralds, and

⁵⁷ Discover Colombia. 01 July 2009
<<http://www.discovercolombia.com/img/Terrain%20Map.jpg>>.

petroleum and importing consumer goods, as well as industrial and transportation equipment. Despite its land distribution and high agricultural export base the highest employment sector is not the agricultural sector but the service sector. Colombia's has a relatively moderate unemployment rate for Latin America, including 11.8% of a labor force consisting of approximately 19.5 million eligible workers.⁵⁸ This labor force has increasingly turned to the service sector as a means to find employment, which has become increasingly available due businesses affording greater workers at lower wages, and overall lower costs in these businesses.

Taking advantage of the low wages, the country has undergone massive revitalization, taking the opportunity to significantly improve its transportation and national infrastructure. Despite recent technological advancements, and the improvements in infrastructure and transportation, geographic challenges continue to present difficulties within the country and roadways remain greatly underdeveloped, considerably affecting the country's economic wellbeing. In recent decades, however, Colombia has faced greater challenges than those associated with its geographic diversity: political and social instability.

3. Political and Social Climate

Like many Latin American nations, Colombia has seen great problems with political and social instability. Most notably, it has had a long history of internal conflict surrounding: the terrorist and paramilitary organization of

⁵⁸ CIA World Factbook 2008.

the FARC, Ejército de Liberación Nacional (National Liberation Army—ELN), the Autodefensas Unidas de Colombia (United Self-Defense Forces of Colombia—AUC), and the various drug cartels. Each of these has influenced political leaders and elected officials, and the direction in which they have shaped Colombia.

The political structure of Colombia has traditionally been led by two opposing parties, despite having more than 15 official parties today. These two parties are known as the Partido Liberal (Liberal Party—PL) and the Partido Conservador (Conservative Party—PC), each of which has implemented many valuable changes in the development and direction of Colombia. Specifically, the PC has helped in the creation of a strong centralized government and the PL in the adoption of universal suffrage in Colombian politics and the separation of church and state.

Another unfortunate tradition that Colombian politics has held, however, is that of a history filled with struggle and violence. More than other countries in Latin America, the violence has come from the Colombian people engaged in armed conflict to resolve political differences, or large terrorist groups creating internal civil unrest. Where other countries in Latin America have experienced great problems with judicial and executive corruption, Colombia's level of corruption, while great, is less in comparison, and has managed to keep to lower positions of authority. Unlike other nations, presidential corruption has been nearly nonexistent, primarily due to the single four-year term limit on the presidency. This law, however, was reformed with the people's desire to see the current President,

President Álvaro Uribe, continue a second term as president.⁵⁹ Under his tenure Colombia has seen many reforms and changes that have brought increased security to the country and with it increased investment and economic prosperity. President Uribe's efforts have led to a dramatic decrease in the members associated with the drug cartels and terrorist groups.

Colombia also the number one producer of coca in the world, generating a multi-billion dollar black market controlled by a handful of drug cartel leaders. The country reached its pinnacle in drug production and distribution in the 1980s, when U.S., as the primary drug consumer, reached an all time high in importation and consumption. This increased demand, helped Colombian drug cartels gain greater resources and power, creating a new and powerful threat to political and social stability. Of these, Pablo Escobar, the head of the Medellín Drug Cartel, was the most powerful and famous of the leaders. As an avenue to increased funding for military training, recruitment, and operations, the past decades have seen the increasing entanglement of the FARC, ELN, and AUC with the drug cartels. Despite these terrorist organizations' long history, the new terminology for the twenty-plus year entanglement, known as narcoterrorism, has been the leading cause of Colombia's stunted economic growth.

The FARC, which was founded in the mid 1960s, is Latin America's oldest terrorist group. Its mission has been to convert Colombia into a communist nation. Stating that it

⁵⁹ El Congreso de Colombia. "Acto Legislativo 02 de 2004". 27 December 2004. <http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=15519>.

is fighting for the poor people and innocent farmers of the nation, it initially received its financing through donations and extortion, but quickly escalated to kidnapping, arms trafficking, and the drug trade. It has struck targets of a wide variety of most national military and police locations, but establishments frequented by the upper class, business travelers, and tourists have been targeted as well. Along with the FARC's rise, the ELN, while much smaller, also believes in communist ideals. Differentiated only in that it originated as a Cuban supporter (as opposed to USSR), the ELN used similar methods to obtain its financing and establish its foundation.⁶⁰ The AUC, on the other hand, developed in the late 1990s out of a group of paramilitaries. These paramilitaries were originally small militia groups meant to protect farming towns from the FARC and ELN. As this grew in popularity, the neighboring militias joined together to eventually form a force of over 31,000 troops. According to USDOS counterterrorism reports, "as much as 70 percent of the paramilitary operational costs were financed with drug-related earnings, with the rest coming from "donations" from sponsors and government corruption."⁶¹

The late 1990s, however, brought about Plan Colombia. This was a plan developed by the United States in an effort with the Colombian military and police force to jointly eradicate the production of coca over a series of years, in the hopes of eliminating the drug cartels, and removing a

⁶⁰ Library of Congress - Federal Research Division Country Profile: Colombia, February 2007.

⁶¹ United States Department of State, Country Reports on Terrorism 2007. Washington, D.C. April 2008. 308.

funding source for the guerillas and paramilitary forces. The plan has yielded mixed results, but it is certain that key leaders in both cartels and guerilla forces have been removed, most notably the FARC's two most senior leaders. Additionally, under President Uribe's tenure, the end of the AUC came with only a small percentage of rogue AUC forces scattered throughout the country.

C. TELECOMMUNICATIONS DEVELOPMENTS

The political and social developments of the country have left no sector or industry unaffected by its problems, including telecommunications. These problems have been seen in the development of the telecommunications industry since its inception and have, in some instances, provided challenges to overcome bringing advancements to areas that otherwise might not have seen them as quickly. Policy and regulation have especially been affected and shaped by the political and social dynamics as will be seen later in this chapter. Another large impact in the development of Colombian telecommunications is the geographic diversity of the country. The installation and maintenance of infrastructure from its commencement created obstacles for the distribution of services to the people of Colombia. The earliest areas that received service in mass were the coastal regions. Mass distribution in the central mountainous regions have presented difficult barriers to overcome, yet with Bogotá at its center government distribution was the essential backbone from which other areas pushed forward in the country's development.

As early as the time of the telegraph (1865), almost three decades after Samuel Morse's development of the electric telegraph, a U.S. citizen, by the name of William Lee Stiles, constructed the first telegraph in Colombia, connecting Bogotá with several other nearby cities. This venture was constructed by the Compañía Anónima Colombiano de Telégrafo, which was half owned by the Colombian government and half through private investors led by Stiles. In 1869, while connection throughout the country continued to reach many of the major cities, claims that the private investors had not fulfilled their part of the contract to install a national network, caused the Colombian government to take over 100% control. The Colombian government's stance on the importance of the telegraph was similar to that of the United States. With the acquisition of the telegraph, Colombia decided to join the postal service and the telegraph service under one entity, supervised by the Postmaster General. Under the direction of the Postmaster General, the construction and development of the national network could continue through private parties, while remaining under contract with the government. Through the use of this subcontracting, the telegraph spread throughout the country, primarily along the railroads and principle waterways, much like the developments of the telegraph of the United States. This, however, was not an unexpected development, as it logically turns out to be the most cost-efficient means of distribution. Furthermore, many of the telegraph's infrastructure pioneers in Colombia came from the United States and the experience and lessons they learned prior to coming to Colombia.

Despite these advancements, it was almost another three decades before Colombia's telegraph was connected to another country. In 1879, the government of Colombia contracted Fralick, Murphy and Company of New York to lay its first submarine cable on the Pacific coast connecting Panama⁶², Buenaventura, and Peru. The company was given a concession of 25 years when it commenced operation in 1882. This new line not only connected Colombia with neighboring Peru, but also enabled the Central and South American Telegraph Company, which later purchased control of the submarine cable and its operation, to use this connection as a vital link in the establishment of a new and shorter route from New York to Brazil.⁶³

As Colombia connected to the world via telegraph, it was also making telecommunications advancements internally. The sounds of the dots and dashes of the Morse Code would be replaced by a human voice, when in 1881, the National Palace (Colombia's Presidential home) was connected to the local telegraph and post office with what would be Colombia's first telephone.⁶⁴ Despite this early connection, it was not until 1884 when Colombia received its first public telephones. The first of these public telephone exchanges was in Bogotá when, on August 28, the Colombian Telephone Company (later becoming the Empresa Telefónica de Bogotá Telephone Company—ETB), was established by José Raimundo

⁶² Panama was still part of Colombia until its independence in 1903.

⁶³ J. Fred Rippy, "The Development of Public Utilities in Colombia." *The Hispanic American Historical Review*, (Duke University Press. Vol. 25, No 1 February 1945), 132, <http://www.jstor.org/stable/2508411>.

⁶⁴Colombian Ministry of Culture. Archeology: Bogota <http://www.sinic.gov.co/SINIC/ColombiaCultural/ColCulturalBusca.aspx?AREID=3&SECID=8&IdDep=11&COLTEM=211>.

Martínez, a Cuban citizen that established the company's primary exchange and headquarters in the center of the city by Plaza de Bolívar.⁶⁵ By 1892, telephone service had reached Bogotá, Barranquilla, Cúcuta, and Medellín and realizing the importance that this innovation would have the government moved to nationalize the telephone infrastructure in Colombia. Like other nations however, the government included with this change a caveat that would prove to enable quick development and installation of the infrastructure throughout the early part of the 20th Century. This critical caveat provided the ability for private companies to construct infrastructure, and maintain and provide service on those connections with a government approved permit or concession for a predetermined period of time, after which the infrastructure would become property of the national government.

Among all the companies to take advantage of these concessions, one of the first was the United Fruit Company (UFC) which was authorized a 20-year concession enabling the construction, maintenance, and operation of the first wireless station in Santa Marta. The UFC's investment was followed by the Marconi Wireless Telegraph company's approval for a 30-year concession to construct stations in Bogotá, Buenaventura, and Medellín. This trend continued with leaders from foreign nations investing in emerging cities throughout the country. By the 1920s, nine more companies followed suit with a total subscription rate of approximately 6300 customers. Of the countries, twelve telephone companies, ETB lead the way with 38% of a market

⁶⁵ ETB. Nuestra Historia.
<http://www.etb.com.co/nuestracom/default.asp?pag=1>.

share and a total of 2,379 customers and the Empresa Telefonica de Medellín (ETM) following them with about 19% of the market share, and a total of about 1200 customers.⁶⁶ The 1920s also saw the benefit such that previously installed wireless telegraph stations were all able to transmit both telegraphy and telephony via these wireless stations. These wireless stations enabled the continued growth in communications and international cooperation, to enhance and maintain communications among many of the Andean countries.

By the 1930s, Colombian telecommunications saw a new change: reforms involving the formalization of nationalizing telecommunications services. According to the telecommunications reforms of 1936, this legalized the current practice, which stated that services for telecommunications could only be provided by the government or a private company that had received a concession or permit. As a result of this law, throughout the next several years, the government purchased all the telecommunications companies in Colombia upon expiration of their concessions, with the exception of the sole international carrier, All America Cable. All America Cable remained with its concession, and the government consolidated all the other companies that it had acquired under a single company, naming it Telecom Colombia in 1947. While the postal service had retained the inspection and controlling right of communications services the new company had a complete monopoly with self-ruling practices over all telecommunications services in the country. True

⁶⁶ Margot Lise Hooley, "Colombia," *Telecommunication in Latin America*, Eli M. Noam, J., Eric W. Skopec, eds. (Oxford: Oxford University Press, 1998), 102.

consolidation of all telecommunications services, however, did not come until 1960, when All America Cable was purchased following the expiration of its concession, and everything, both international and domestic, was placed under the government control. For the next three decades, the Colombian telecommunications industry would remain fully privatized, and even today, the government continues to have ownership in various areas of telecommunications.

Despite inefficiencies that are often seen through monopolization, the early control of the telecommunications sector enabled significant growth of the network, and expanded it to areas that were otherwise without telecommunications services. To better manage its larger network, the government divided the control of Colombia Telecom into the regional municipalities throughout the country, delegating control of local operations and maintenance to these newly formed 54 municipalities by 1975.⁶⁷ With the increased number of municipalities exercising regional control, the maintenance and expansion of the network was not always standard and, therefore, resulted in different types of switching technologies throughout the country.

When the economic crisis of the 1980s hit, Colombia was not excluded from the repercussions of its effects, despite its relative history of financial stability. As a result of government control, the telecommunications sector suffered, and growth throughout the 1980s slowed. In 1989, like many other Latin American countries, privatization of companies was seen as a good option to solidify financial positions,

⁶⁷ Hooley, 104.

and reduce the risk in a reoccurrence of crisis again. The Colombian telecommunications sector that had long held complete governmental monopolistic control was ready to become privatized as well.

D. POLICY AND REGULATIONS

1. Regulatory Body and Policy Overview

The Ministry of Communications, which was established on January 26, 1976,⁶⁸ is the responsible authority that governs the inspections, control, and oversight of communications in Colombia. Among its duties, the Ministry of Communications is responsible for the creation, adoption, and execution of policy as well as the approval of concessions and licenses for both public and private companies. The Ministry of Communications is also the lead entity to interact at the international level when pertaining to agreements, tariffs, and disputes. Additionally it monitors and enforces the electromagnetic spectrum, allocates frequency, and is responsible for the assurance of universal service.

The regulation of telecommunications is governed by the Comisión de Regulación de Telecomunicaciones (CRT - Telecommunications Regulation Commission). Created by Law 142 in 1994,⁶⁹ the CRT has complete administrative and technical autonomy to act as the entity adhering to the Ministry of Communications to set the regulations by which

⁶⁸ Ministry of Communications, *Breve Reseña Historica de las Comunicaciones en Colombia*. http://www.mincomunicaciones.gov.co/mincom/src/index.jsp?page=../mods/contenido/view_page&id_contents=54.

⁶⁹ CRT, *El Sector de las Telecomunicaciones en Colombia en la decada de los 90's* Bogota, Colombia 2000, 20-21.

the telecommunications companies must abide as well as the establishment of access charges for interconnection and the regulations for pricing. The CRT further has the responsibility to ensure the quality of service, and with the Ministry of Communications, jointly sets the quality of service standards, which must be abided by.

A separate entity from the CRT is the Ministry of Communications is the Comisión Nacional de Televisión (CNTV—National Television Commission), which has regulatory and oversight control over television broadcasting and content. The CNTV is further responsible for the planning, development, and negotiation of the electromagnetic spectrum of television service.

Several of the important telecommunications regulations, laws, and decrees, are cited in Table 8.

Significant Telecommunications Regulations and Policies	
Decree #129 1976	Establishment of the Ministry of Communication on January 26 previously called the Ministry of Postal Telegraph Service.
Law #72 1989	Establishes the concepts, principles, objectives of all telecommunications services and dictates the role of government officials in telecommunications from the President through the Ministry of Communications.
Decree #1900 1990	Establishes general definitions, policies and regulations, specifying the clarification of the types of services and the infractions associated with non-conformance.
Decree #1901 1990	Determines the entities that conform to the telecommunications sector, restructuring the role and responsibilities of the Ministry of Communications.
Decree #1794 1991	Expands on Decree #1900, 1990 to include the value added services.
Constitution 1991	Establishes the fundamentals for open competition, allows for foreign investment and establishes the control of the electromagnetic spectrum to the government.

Significant Telecommunications Regulations and Policies	
Decree #2122 1992	Modifies Decree #1901 of 1990 reassigning functions of the Ministry of Communications and creates foundations of the CRT in an administrative and advisory role.
Law #37 1993	Establishment of regulations pertaining to cellular telephony.
Law #142 1994	Officially established the creation of the CRT, defining its roles and responsibilities and its relationship with the Ministry of Communications and the telecommunications sector.
Law #182 1995	Regulates television service and creates policies for its development.
Law #335 1996	Modifies Law #182 of 1995 permitting a large portion of televisions services open to the private sector.
Law #422 1998	Modifies Law #37 of 1993 delineating illegal access and illegal presentation of telecommunications services.
Decree #1130 1999	Restructuring of the rights and responsibilities of the Ministry of Communications and the CRT.
Law #527 1999	Creates the Commercial Electronics Law, defining access and the use of text messaging, digital signatures, and digital certificates.
Resolution #1296 2005	Establish new guidance and protections for users of mobile and fixed line communications devices.
Decree #2870 2007	Facilitates the ability for the convergence of telecommunications services.

Table 8. Significant Colombian Regulatory Events^{70, 71}

2. Frequency Spectrum Management

The Ministry of Communications is the authority that is responsible for monitoring, enforcing, and allocating the frequencies for the electromagnetic spectrum. Among its duties, the Constitution of 1991 prohibits the monopoly of the electromagnetic spectrum by anyone in Colombia. As a subset of the spectrum regulation enforcement and management, the CNTV has specific management of the spectrum, which is assigned for the use of television within

⁷⁰ CRT, 23.

⁷¹ ITU ICT Country Profile, 2008.

the country. The CNTV manages cable, antenna, and jointly with the Ministry of Communications satellite, television, though all other satellite communications fall solely to the Ministry of Communications. Like many other countries throughout Latin America and the world, it governs the allocation of the electromagnetic spectrum, through the sale of concessions at auctions. Within its laws and decrees, the government establishes a reserve of 10% of the electromagnetic spectrum for the use of governmental and military uses. The remaining 90% of the electromagnetic spectrum is divided into types of service; it is then further broken down into one of three regions within the country, and then sold as concession at auction.⁷² In the past decade, there has been particular interest in the freeing of previously restricted frequencies for the development of WiMax and issued licenses in these frequencies to three companies throughout the country.⁷³

2. Privatization and Competition

The privatization in Colombian telecommunications has been a point of interest throughout the past two decades. In 1990, following the Decrees #1900 and 1901, the government pushed to greatly improve the telecommunications sector in Colombia. To accomplish this task, it budgeted billions of dollars over the next decade to set out a series of goals and milestones. The first of the three primary goals that were set was to triple the teledensity of Colombia by 2000, bringing its level of teledensity on par to

⁷² Ministry of Communications, Cuadro Nacional de Atribución de Bandas de Frecuencias. Bogota, Colombia, 2004, 23.

⁷³ CRT, *Sector de Telecomunicaciones de Colombia*. Bogota June 26, 2006.

more developed nations. The second goal was to increase the size of the service areas, taking advantage of economies of scale, and adding better standardizing telecommunications throughout the country, to accomplish a reduction in costs to the end user. Finally, the last goal was to increase the types of services, to include value added services, and establish a higher base service throughout the country.⁷⁴ To accomplish these goals, the government felt that privatization was a critical next step and evidence from other countries suggested that it could not only improve but greatly reduce the financial burden that would come with a set of large tasks.

Following the Constitution of 1991, plans were made to rapidly privatize the telecommunication sector the following year. However, in 1992 the attempt to privatize was aborted after a "week-long disruption of telephone services, weakening the political will for the kind of "big bang" approach that the Argentine government had pursued."⁷⁵ The government, forced to reevaluate its position decided to privatize in a series of increments gradually moving towards privatization until it finally sold its controlling stake in Colombia Telecom to the Spanish telecommunications company Telefonica in 2006 and the company changed its name to Telefonica Telecom. Today, the telecommunications sector is open to full competition, it has been liberalized, and while the government still holds a stake in the telecommunications

⁷⁴ Hooley, 107.

⁷⁵ Philip Gray, "Colombia's Gradualist Approach to Private Participation in Infrastructure" *Privatesector*. The World Bank Group May 1997, 1.

of Colombia, foreign investment is robust with the two greatest competitors in the country being Telmex International and Telefonica Telecom.

3. Regional and International Agreements

Colombia has agreements for trade in all sectors of the economy including telecommunications with partners both regionally and globally. The most recent agreement posed to bolster the Colombian economy and telecommunications, is known as the Colombian Free Trade Agreement (CFTA). While signed on November 22, 2006, and approved by the Colombian Congress in 2007, it has not yet come into effect as it is still pending U.S. Congressional approval as of August 2009. If it is approved and goes into effect all tariffs will be eliminated, most immediately, and some to be phased out over a predetermined period.⁷⁶ This elimination of tariffs will translate into several key items of interest for the telecommunications sector. The first effect will be the reduced cost of the connection charge when making an international call. The elimination on tariffs will make the purchasing of goods much more affordable and in theory, technological good and services will increase in flow in both directions benefiting both countries. According to an International Trade Administration report, "WTO Information Technology Agreement products accounted for 16.2% of total U.S. industrial exports to Colombia in 2007, totaling over \$1 billion. The top U.S. exports in this sector included computers and parts, data transmission equipment, and calculating instruments. Colombian tariffs range between 5

⁷⁶ USTR, *Colombia FTA*. 05 June 2009 <http://www.ustr.gov/tradeagreements/free-trade-agreements/colombia-fta>.

and 15 percent, with an average of 8.2%.”⁷⁷ Furthermore, the Colombian exports to the U.S., which includes transmission equipment, cellular phones, and optical media, totaled approximately \$32.6 million in 2007⁷⁸ is expected to increase significantly should the CFTA be approved.

E. INFRASTRUCTURE

1. Television

Television in Colombia started on June 13, 1954,⁷⁹ and while initially slow to spread throughout the country, has become today’s number one media outlet. According to a study conducted by the CNTV in 2008, 44% of all households have at least two televisions in their homes and in the past several years there has been an increasing trend in homes to include not just national television but pay television as well. The pay television in Colombia has significantly increased in with the increase of the convergence of television and other telecommunications services. Leading the way is Telmex International, operating as Telmex Hogar, which between acquisitions and additional growth has gained control of approximately two-thirds of the cable television market. The next competitor is Empresas Públicas de

⁷⁷ International Trade Administration, *US-Colombia Free Trade Agreement Market Access Results*. April 2008, 1.

⁷⁸ Ibid.

⁷⁹ Biblioteca Luis Ángel Arango, *Historia de La Television en Colombia* December 2005 http://www.lablaa.org/blaavirtual/exhibiciones/historia_tv/historia.htm 08 August 2009.

Medellín (EPM), operating as UNE a telecommunications company that owns approximately one-fifth of the market and is a publicly owned.⁸⁰

In February 2008, Telmex Hogar commenced triple play service in Colombia consisting of television, telephone, and broadband Internet service at prices reduced to the sum of all three at individual rates. Other companies including EPM have followed suit to match triple play the triple play offering by Telmex. The result has been a revolutionized cable network that extends to over 200 cities.

2. Fixed Line Telephone

Since the failed attempt to privatize the Colombia Telecom in 1992 the gradual process to privatize has made progress. However, the three goals established prior to the Constitution of 1991 have not all been met. While the service areas and the types of service have greatly increased since 1992, the goal to triple the number of fixed line subscribers by 2000 has not been achieved, as seen in Figure 14.

⁸⁰ Ipsos Public Affairs, *La Gran Encuesta de la Televisión en Colombia* September 2008, 74.

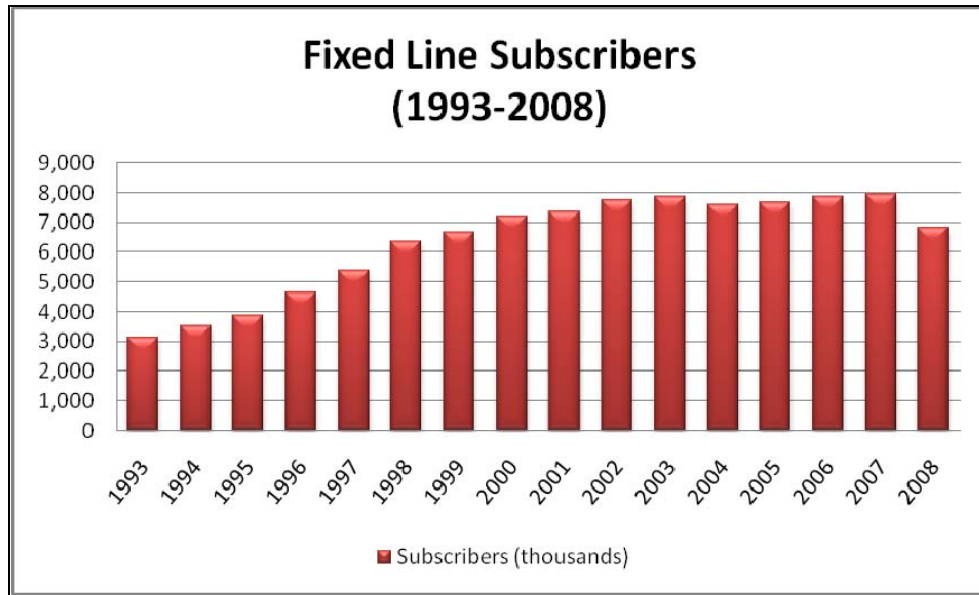


Figure 14. Colombian Fixed Line Subscribers, 1993-2008⁸¹

While it appears as if the number of fixed line subscriber has peaked in 2003 at approximately 7.9 million subscribers this trend could be as a result of the vast majority of people have converted to using mobile telephones instead of fixed line phones. Furthermore, while number of lines indicated to have more than doubled since 1993 to its peak in 2003, due to population increase the teledensity has actually barely doubled as shown in Figure 15.

⁸¹ Compiled from ITU Statistics, 2008.

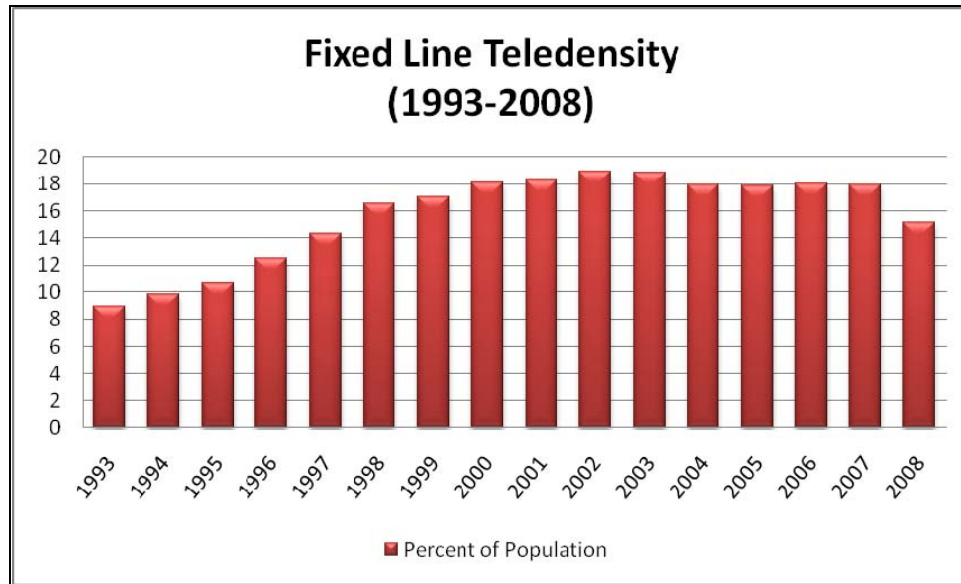


Figure 15. Colombian Fixed Line Teledensity, 1993-2008⁸²

The trend for fixed line telephones in Colombia has actually been one of decline since 2003. Both Figures 14 and 15 clearly show the sharp drop in fixed line subscribers between 2007 and 2008. This trend appears to be a positive move for Colombia, despite the need for service in many of its rural areas as the similar trend can be noted for many of Latin America's further developed countries and the United States as well has experienced a drop in fixed line subscribers. All indications appear that the decline is not a result of people not needing a means to maintain voice communications but the decreasing costs, increasing functionality, and portability of mobile communications have made the replacement of fixed line service with mobile service a much more viable option.

⁸² Compiled from ITU Statistics, 2008.

3. Mobile Telephones

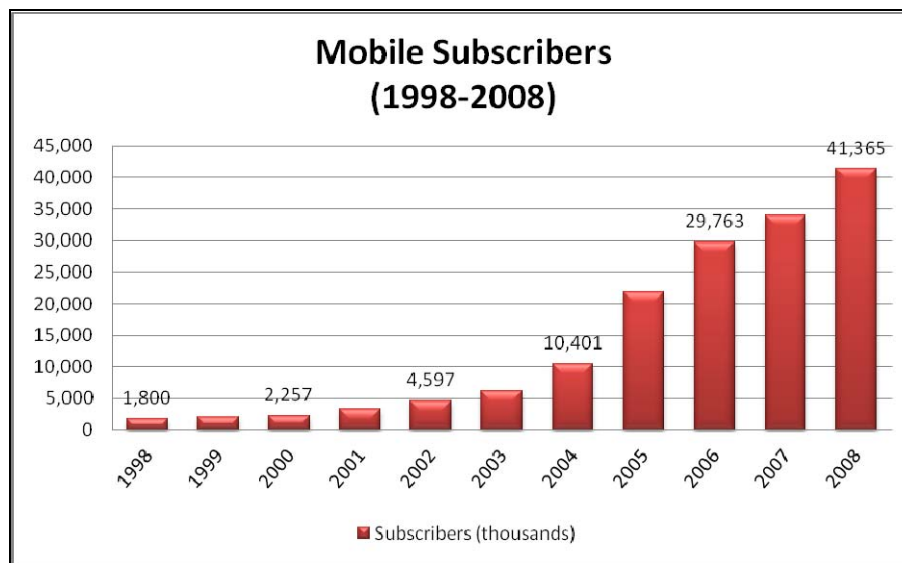


Figure 16. Colombian Mobile Subscribers, 1998-2008⁸³

As mentioned, mobile telephony in Colombia has been increasing significantly and in particular in the past five years. Comparatively looking at Colombia's mobile telephone market, the country's growth commenced at a very slow rate since the introduction of mobile communications to the country. The slow rate can be attributed to the high cost that was associated with the billing plan service that dominated the service in the 1990s. The restructuring and reforms in telecommunications to protect the users, to reduce interconnections charges, and the increase in both domestic and foreign investment have propelled mobile communications to the forefront of telecommunications in Colombia. The influence of América Móvil's pre-paid mobile communications services have also greatly aided in increasing the number of subscribers. As of December 2008,

⁸³ Compiled from ITU Statistics, 2008.

the number of mobile communications subscribers throughout the country surpassed 41 million (Figure 16) making the teledensity for mobile communications approximately 91.9% (Figure 17), higher than that of the United States.⁸⁴

While the interconnection rates in the country from fixed line to mobile and vice versa have been reduced significantly, the interconnection cost between companies remains relatively high. In Colombia, the rise of “public” mobile phones have become common. Phone calls can be made by using street vendors with cell phones to call other cell phones on the same network for very low prices. A caller charged format has also been a cause to increase the popularity of such services, as the recipient of a phone call will not pay any charges at all.

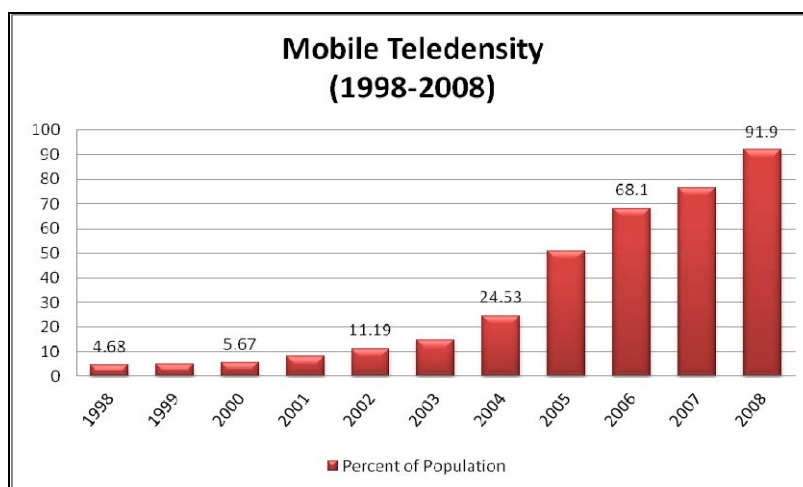


Figure 17. Colombian Mobile Teledensity, 1998-2008⁸⁵

⁸⁴ ITU Statistics indicate United States' mobile teledensity at 86.8%.

⁸⁵ Compiled from ITU Statistics, 2008.

4. Internet

Like much of Latin America, the Internet in Colombia has been a difficult technology to adopt. The two greatest factors contributing to the slow adoption of the Internet in Colombia, have been the lack of infrastructure, and the charges associated with phone calls when using dial-up service. While in the past year the number of subscribers has risen to just above 2 million, that number is approximately half of the world average, when looked at as a percentage of population in the country. Despite this, it appears as if Colombian regulations and policies have been able to double the number of subscribers from 2006 through 2008 (Figure 18). A large driver in this was the privatization of Colombia Telecom and increased liberalization of the telecommunications market.

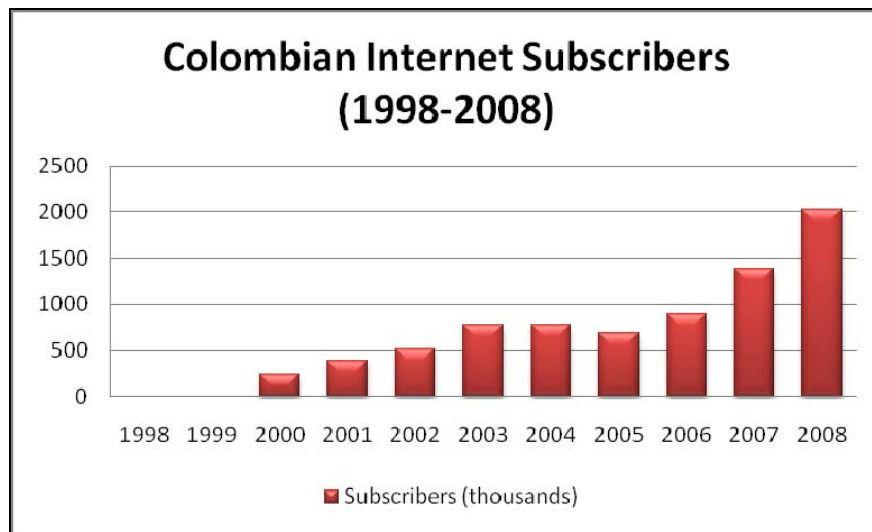


Figure 18. Colombian Internet Subscribers, 1998-2008⁸⁶

⁸⁶ Compiled from ITU Statistics, 2008.

While the number of Internet subscribers remains low the number of users is significantly higher. As in many Latin American countries an extensive network of Internet cafes throughout the country and especially in the rural areas means that while many people might not subscribe to the service many people are using the Internet totaling approximately 17.1 million users. In Colombia 38.06% of the population uses the Internet making it the second highest percentage of users in any Latin American country behind Uruguay. This is a significant change from 2007 where Colombia ranked fifth among percentage of users in Latin America.⁸⁷

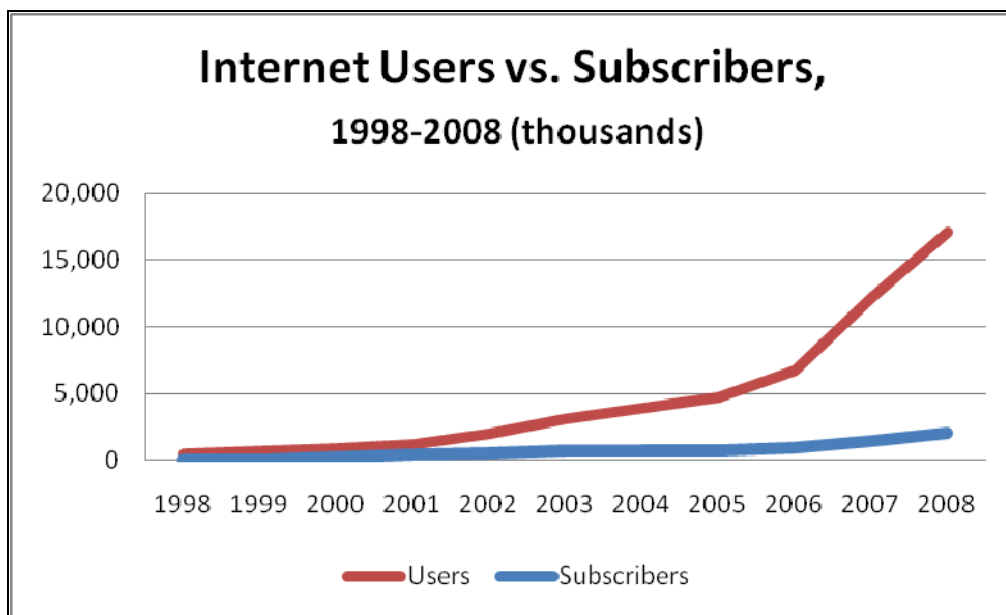


Figure 19. Colombian Internet Users vs. Subscribers, 1998-2008⁸⁸

⁸⁷ ITU Statistics, 2008.

⁸⁸ Compiled from ITU Statistics, 2008.

F. CONCLUSION

Colombian telecommunications, despite large involvement by the government, has done comparatively well. Though reforms specific to the sector have not occurred as quickly or in as much quantity as other countries the past two decades show that the Colombian telecommunications market has been making rapid steps forward in the past five years, and is continuing to adopt technology at a rate that appears to be higher than most of Latin America. Several factors point to the rapid increase in the past five years. These have been: change in policy, new regulations, increased competition, and increased foreign investment. As Colombia has managed to diminish the effects of its drug trafficking and internal struggles, Colombia's increase in internal stability make it a more attractive place to invest. Continued growth in the Colombian telecommunications market will most likely yield a mix of results. The overall trend shows that fixed line telephones have decreased and though the mobile market has reached 91.9% one must ask: at what point will the market mobile market be oversaturated? The particular area that would indicate continued large growth for the years to come would be the Internet and the development of its infrastructure as more users decide to become subscribers.

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V. VENEZUELA



Figure 20. Political Map of Venezuela. (From Maparchive.org, February 2009)⁸⁹

⁸⁹ The Map Archive, "Venezuela (Political," 12 April 2007, http://www.maparchive.org/details.php?image_id=412.

A. INTRODUCTION

At the northeast corner of the South American continent is Venezuela, a geographically diverse country, perhaps best known for its massive amounts of petroleum production and, in the past decade, the activities of its president, Hugo Chávez. Since the 1920s, Venezuela has been a world leader in oil production and has possessed the ability to refine equally large amounts of petroleum into the usable combustibles and plastics we use today. Since this time however, the economy of Venezuela has been closely tied to petroleum and its price on the world market. It has been determined that Venezuela has sufficient oil supply to last more than 100 more years and has the largest reserves of petroleum in South America and is the sixth largest in the world.⁹⁰ This close relationship has made for an increased amount of economic volatility and in turn created significant volatility on the political and social aspects of Venezuelan life. The simple fact is that after the 1920s the development of any of the countries infrastructures or technologies have been centered on the petroleum industry or has been affected as a result of it in both positive and negative ways.

Politically Venezuela has actually had one of the longest democracies in Latin America. From 1958 until 1989, it appears as if Venezuela may have been an ideal example for democracy in the Latin American world. Like many Latin American nations however, the 1980s brought economic troubles that also spurred political problems and in 1989,

⁹⁰ Library of Congress - Federal Research Division Country Profile: Venezuela, March 2005.

we see considerable changes in the Venezuelan political scene with the presidency of Carlos Andres Pérez. As a result of the government's political and economic measures, fuel prices doubled, Venezuelans rioted in the streets of Caracas and other cities in February 1989 until the Army was called in to stop it. In 1996 Pérez was found guilty and imprisoned for embezzlement and corruption and two years later on December 6, 1998, Hugo Chávez was elected president. Since then public relations with the United States and many non-left leaning nations have suffered. Many changes in the Chávez regime have caused nationalization of many industries in Venezuela and changed many of the regulations that govern them. While the nationalization of the oil industry occurred in 1976, the vast majority of industries that were privatized, have since become nationalized again or for the first time by Chávez. Among the nationalized and in some cases expropriated industries under President Chávez's regime lie the electrical, steel, and the telecommunications industries. These industries along with the oil industry are critical strongholds to the infrastructure and national development of Venezuela.

The development of Venezuela's telecommunications infrastructure has been somewhat typical of many of the world's areas. Venezuela's development has been highly centered on the capital and its other major cities. Due to its dependency on the large percentage of petroleum in its northwest region the development of telecommunications in this region has extended comparatively well in the relatively rural area in comparison to the rest the rural Venezuela. The development's greatest challenges and period

of growth have come predictably at the times when world oil prices are at its highest. Sector specific challenges have come from the hindrance of regulations and the stifling of growth brought about by the changes in its privatization and nationalization policies. As seen in the short time of the privatization of the country's telephone company, National Autonomous Telephone Company of Venezuela (CANTV), the privatization brought large amounts of overseas investment and proved to yield many improvements and greater expansion for the country's infrastructure and operating network.

B. BACKGROUND

1. Country Overview

Venezuela is South America's sixth largest country, at approximately 1.3 times the size of Texas, and has a population of approximately 28.1 million people.⁹¹ Bordered by Brazil to the south, Guyana to the east, Colombia to the west, and the Caribbean Sea to the north, Venezuela is a country with a very diverse geography that is diagonally separated into four prominent regions. These four regions consist of two highland regions, a central plains region, and a lowlands region. The Andes Mountains make up one of Venezuela's highland region, which divides the northwestern tip of the country from the North Central and South/Southeastern region. It is at the end of the mountain ranges where Caracas, Venezuela's capital and most populous city, is located, only a few miles from the Caribbean Sea. The Andes Mountains is also where the country's highest

⁹¹ CIA World Factbook 2008.

point, Pico Bolivar, is located at an altitude of approximately 16,400 ft.⁹² Cradled among mountains to the Northwest of the Andean Mountain ranges, are the country's lowlands and coastal region, that contain the state of Zulia, the primary location of Venezuela's source of petroleum. The state also includes South America's largest lake, Lake Maracaibo, where the majority of the states petroleum deposits lie. To the South and Southeast of the Venezuela is the Guiana Highlands that run along the border of Guyana and Brazil, located in the Guiana Highlands is Angel Falls, the world's tallest waterfall. Between Venezuela's two highland regions, lies the plains region where the country's agricultural industry produces large quantities of the nation's corn, and is vital to widespread cattle grazing. Along its coasts, Venezuela has three very important ports: Puerto Cabello, which is the top port for cargo, La Guairá, and Maracaibo, the principle port through which Venezuela exports its oil shipments.

As one of the world's top producers of petroleum, Venezuela's lifeblood is the oil that it is able to produce and export worldwide, and primarily to the United States. Venezuela owes much of its success to the petroleum it exports but by that same token it has been the cause of many of its problems. Petroleum exports and refining make up approximately one-third of its GDP, which in 2008 grew approximately 5.7% to approximately \$368.6 billion. Venezuela's labor force of approximately 12.37 million people comprises an unemployment rate of about 8.5%, which fairs better than the United States at present. Venezuela's

⁹² CIA World Factbook 2008.

biggest challenge is that it faces high inflation and a population of which approximately 38% is below the poverty line, contributing to one of the world's largest GINI indexes (which measures the degree of inequality in the distribution of family income).⁹³ While the measure of inequality has historically been very high in Latin America and in Venezuela alike, many of the country's recent problems can be attributed to political corruption and increased tensions between the classes, causing the current president, President Chávez, to make radical changes that many argue are increasing the Venezuela's representation and economic problems.

2. Timeline of Significant Events

Significant Events in Venezuelan History	
1810	Venezuela takes advantage of Napoleon Bonaparte's invasion of Spain to declare independence.
1829-1830	Venezuela secedes from Gran Colombia and becomes an independent republic with its capital at Caracas.
1947-1948	President Romulo Gallegos, Venezuela's first democratically elected leader is overthrown within eight months in military coup led by Marcos Pérez Jimenez.
1973	Venezuela benefits from oil boom and its currency peaks against the U.S. dollar; oil and steel industries nationalized.
1983-1984	Fall in world oil prices generates unrest and cuts in welfare spending.
1989	Carlos Andres Pérez elected president due to economic depression; country accepts economic austerity program and IMF loan. Social and political upheaval includes riots, between 300 and 2,000 people are killed, martial law and a general strike.
1992	Some 120 people are killed in two attempted coups, the first led by future president Colonel Hugo Chávez and the second carried out by his supporters. Chávez is jailed for two years before being pardoned.
1996	President Carlos Andres Pérez imprisoned after being found guilty of embezzlement and corruption.

⁹³ CIA World Factbook 2008.

Significant Events in Venezuelan History	
06 Dec 1998	Hugo Chávez elected president.
1999	Venezuela adopts new constitution.
Nov 2001	President Chávez appears on TV announcing 49 reform laws, including land and oil industry reforms, under powers that did not require them to be approved by the National Assembly.
Apr 2002	Some 150,000 people rally in support of strike and oil protest. Military high command rebels and demands that Chávez resign.
Dec 2002	Opposition strike cripples the oil industry. Organizers demand that Chávez resign. The nine-week stoppage leads to fuel shortages.
Jan 2007	President Chávez announces that key energy and telecommunications companies will be nationalized.
May 2007	Government takes control of oil projects in the Orinoco Delta. Thousands gather in Caracas upon the government's closure of the RCTV channel that has been critical of President Chávez.
Aug 2008	President Chávez announces plans to nationalize one of the country's largest private banks, the Spanish-owned Bank of Venezuela. Mexican CEMEX seeks World Bank arbitration over Venezuelan nationalization of local subsidiary.
Oct 2008	First Venezuelan telecommunications satellite launched from China.

Table 9. Significant Events in Venezuelan History⁹⁴

3. Political and Social Climate

According to Steve Ellner, a long-time professor at Venezuela's University of Puerto La Cruz, you can sum up the history of Venezuela's politics into three general periods. The first was the time from Venezuela's independence in 1811 until 1958. During this time period, Venezuela was a nation that was determining what its government would be like and, as a result, was filled with many military leaders and dictatorships exchanging control. AS a result of this, Venezuela was not as well suited for development as other nations, despite significant growth commencing in the 1920s

⁹⁴ Compiled from various sources.

when Venezuela shifted its focus from an agricultural production and exportation to petroleum refining and exporting. This period ends, however, in 1958 when the dictator at the time, Marco Perez Jimenez, was overthrown and a two-party democratic system was installed.

During this second period, democracy was relatively stable and the country's two parties, the Acción Democrática (AD) and the Christian Democratic (COPEI), interchanged throughout the next four decades. Of significance during this time period was the passing of the Constitution of 1961, which ensured Venezuela becoming a capitalist country but reserved the "Basic Industry" for the state. The constitution, which played a significant role in changing the previous century's policies, was also very vague and left open to interpretation that would result in the creation of government-controlled petroleum, steel, and electric companies. Latin America's economic crisis of the 1980s was driven by increased lending to Latin American nations, as rising oil prices made this region of the world a good investment, particularly in countries such as Brazil, Mexico, and Venezuela. Venezuela, however, despite great wealth being generated by its petroleum sales and no real need to borrow, also fell victim to the economic problem of the 1980s, and increased inequality amongst the classes became more evident. By 1998, Hugo Chávez, a former Lieutenant Colonel in the Venezuelan Army, decided to run on the platform of non-repayment of foreign debt and the

replacement of "representative democracy" with "participatory democracy." With 56% of the vote, President Hugo Chávez was elected on December 6, 1998.⁹⁵

Like many other Latin American countries, Venezuela was in need of raising more money and reducing overhead costs as the 1980s economic crisis was coming to a close. As a result, it privatized many of its industries through public and private sales. Despite many problems, and faced with the current regime's control throughout the past decade, the telecommunications sector saw increased growth and foreign investments. In part, much of the growth can be attributed to the comparatively recent privatization of the telecommunications industry in 1991.

C. TELECOMMUNICATIONS DEVELOPMENTS

Little is said about the early telecommunications developments of Venezuela. However, like many countries the early telecommunications means such as telegraph and telephone were tightly controlled by the government. Venezuela's first telegraph line was established in 1856 between the cities of La Guairá, the countries main seaport of the day, and Caracas, located a few miles away. By 1909, there were 7,839 km of wires, and international service had been achieved by connecting the island of Curacao to La Guairá.⁹⁶ By 1883, Venezuela had its first telephone service; this service, however, was only temporary. James A Derrom, from the Intercontinental Telephone Company,

⁹⁵ Steve Ellner, "Venezuela: A 'Model' Democracy in Crisis," *Latin America: Its Problems and Its Promise*, Jan Knippers Black, ed. (New York: Westview Press, 2005), 409-241.

established this service using only three telephones on a trial basis for the purpose of demonstration. Actual service with number of subscribers was not established until 1890. This service was established through a concession given by the Venezuelan government to the Telephone and Electrical Appliances Company (TEA) from England and provided service to 400 subscribers as a private company. In 1894, the American Electric and Manufacturing Company established the infrastructure for the government's service of telephone lines and, by 1898, agreements had been signed concerning the regulation of the telephone network.⁹⁷ Accounts from individuals state, "Such telephone lines as exist are mainly in the hands of private companies or individuals, and only 10 of the 120 lines existing are owned by the State."⁹⁸

Despite ownership of telephone service by private companies the constitution of 1914 ensured that "all activities related to the mails, telegraphs, and wireless communications"⁹⁹ were to be under the control of the government and further extended that to be a part of the executive branch. Though several small companies applied for concessions in order to install and provide telephone service, the first large company to successfully do so on a national scale was the Compañía Anónima Nacional Teléfonos de Venezuela (CANTV—the Venezuela Anonymous National

⁹⁶ Leonard V. Dalton, B.Sc. *Venezuela* (New York: Charles Scribner's Sons, 1912), 254.

⁹⁷ Natan Zaidman, "Venezuela," *Telecommunications in Latin America*, Eli M. Noam, J., Eric W. Skopec, eds. (Oxford: Oxford University Press, 1998), 115.

⁹⁸ Dalton, 254.

⁹⁹ Zaidman, 116.

Telephone Company), which began service in 1930. On September 14, 1931, international radiotelephone service was officially open for public use. To better manage and regulate Venezuela's increasing communications systems, the government decided to establish a ministry to oversee its use and service, and the existing postal service was chosen to adjoin the developing communications systems. On February 25, 1936, the Ministry of Transport and Communications (MTC) was established to regulate the mail service, all communications services, and railroad and air transportations services.¹⁰⁰

During the 1940s, Venezuela changed positions politically from the Gomez dictatorship to a period of democratization and back to another dictatorship this time under Jimenez. On July 29, 1940, the Telecommunications Law of 1940 was passed officially assigning the administration of the telecommunications sector to the national government of Venezuela.¹⁰¹ The brief period of democratization from 1945-1948, however, brought about the legalization of labor unions and political parties, and provided a more established freedom of expression along with electoral reforms. These changes were short lived when, in 1948, General Marco Pérez Jimenez installed a military dictatorship that lasted until 1958. During Jimenez's dictatorship, foreign investments that had started to increase during the brief democracy began to fade quickly, and the telecommunications sector was no exception. Amidst

¹⁰⁰ Zaidman, 116.

¹⁰¹ CANTV, 1930-1952: *El Inicio de la era del Cobre*
http://www.cantv.com.ve/seccion.asp?pid=1&sid=158&id=2&und=6&cat=item_lc&item=item_7&item_name=Historia.

increased financial difficulty, the national government seized the opportunity to nationalize the telephone industry in 1953 by purchasing 100% of the 20,000 shares of common stock for CANTV. Following this move the government of Venezuela continued to pursue the goal of acquiring all the telephone companies in the country until it was successful with the acquisition of the San Fernando de Apure Company in 1973.¹⁰²

Despite the economic and social trouble of the 1980s, demand for telecommunications services grew in Venezuela throughout the decade as CANTV, still a nationalized company, had difficulty keeping up not only with demand but with the increasing need to modernize equipment. The drop in world oil prices in the mid 1980s forced Venezuela to reduce spending in all areas, including telecommunications. The cutbacks were further exacerbated by the countries required IMF loans and economic recovery programs that were instituted in 1989. By 1990, the 25-year concession held by CANTV has expired and the government debated its renewal amidst its declining infrastructure and increasing indebtedness. Following a six-month examination of CANTV and all possible avenues to move forward it was determined to privatize the industry. On December 15, 1991, CANTV was finally privatized with the sale of 51% of its stock to the GTE Corporation, 16% to Telefonica, 5% to AT&T, and 12% to various other investors.¹⁰³

¹⁰² CANTV, 1953-1991: *La Primera Nacionalización*
http://www.cantv.com.ve/seccion.asp?pid=1&sid=158&id=2&und=6&cat=item_lc&item=item_7&item_name=Historia.

¹⁰³ Ibid.

In the years following the privatization of CANTV, much of the existing network was replaced from analog to digital switching. The network was also considerably expanded throughout the next five years, adding more than 1500 miles of fiber optic lines¹⁰⁴ and increasing service quality throughout the country. Similar to the way in which privatization occurred in Mexico, when Venezuela privatized CANTV the government granted it a nine year concession to a legalized monopoly so that the network would be modernized and expanded. On November 28, 2000, fifteen more licenses were sold at auction by regulators. In order to keep costs low and to expand at a faster rate the licenses granted were for three parallel microwave networks for fixed line service.¹⁰⁵

The decision to sell more licenses stemmed from several critical points, the most important of which was that the nine-year concession had ended and the performance of CANTV's expansion of the network. While the network had expanded in the years immediately following, the privatization costs remained relatively high, and increased competition would help alleviate the problem. Furthermore, the network had reached a pinnacle teledensity by 1997 of approximately 12.2% of the population, declined in the years that followed and by 2000 had come to a stagnated position of approximately 10.4%, indicated by Figure 21. In a bold

¹⁰⁴ CANTV, 1991-2007: *De compañía de teléfonos a Corporación de Telecomunicaciones* http://www.cantv.com.ve/seccion.asp?pid=1&sid=158&id=2&und=6&cat=item_lc&item=item_7&item_name=Historia.

¹⁰⁵ Anton A. Huurdeman, *The Worldwide History of Telecommunications* (John Wiley & Sons: New Jersey) 2003, 561.

move, the Telecommunications Law of 2000 was passed on June 12, liberalizing the telecommunications sector and providing increased favorability for outside investment.

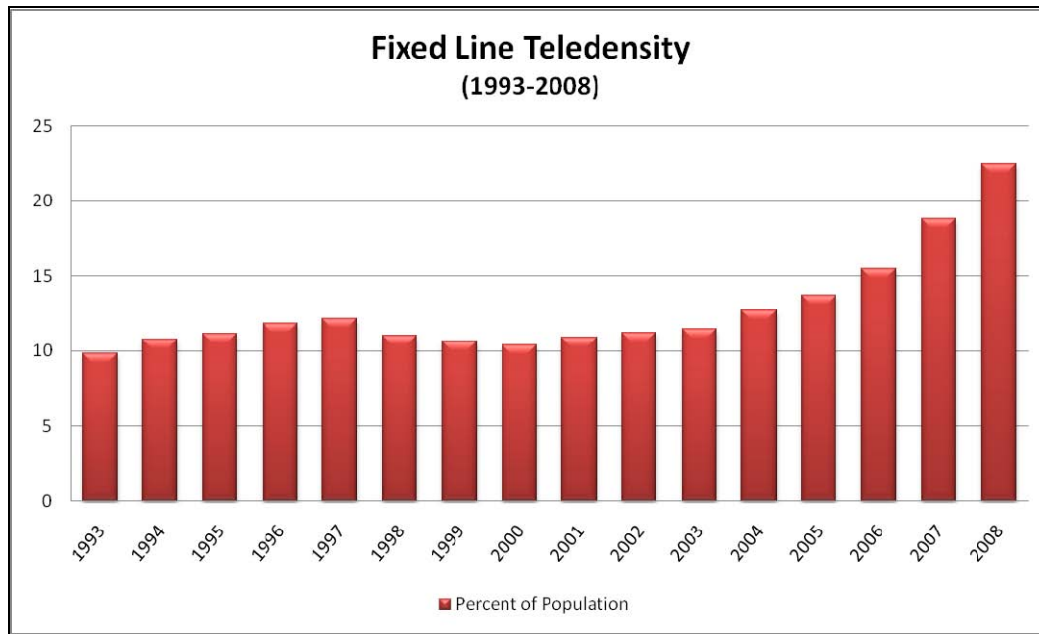


Figure 21. Venezuelan Fixed Line Teledensity, 1993-2000¹⁰⁶

From 2000 until 2007, telecommunications in Venezuela received significant foreign investments, particularly in the fixed line and mobile communications areas of telecommunications. The U.S. company Verizon Communications became the leading shareholder of CANTV, and though as a company it lost subscribers to its competition, the country's overall growth nearly doubled in fixed line teledensity. Mobile communications, which had already been well established in comparison to many other Latin American countries, also increased significantly reaching about 22.3% of the population by 2000. Mobile communications' early

¹⁰⁶ Compiled from ITU Statistics, 2008.

presence, the slow growth of fixed line communications, and the reduced tariffs for interconnection between mobile and fixed lines enabled Venezuela to surpass fixed line communications with mobile communications by 1999. Venezuela was one of the earliest countries to adopt mobile communications and was in fact the first Latin American country to have mobile telephone subscribers to surpass that of fixed line penetration.¹⁰⁷

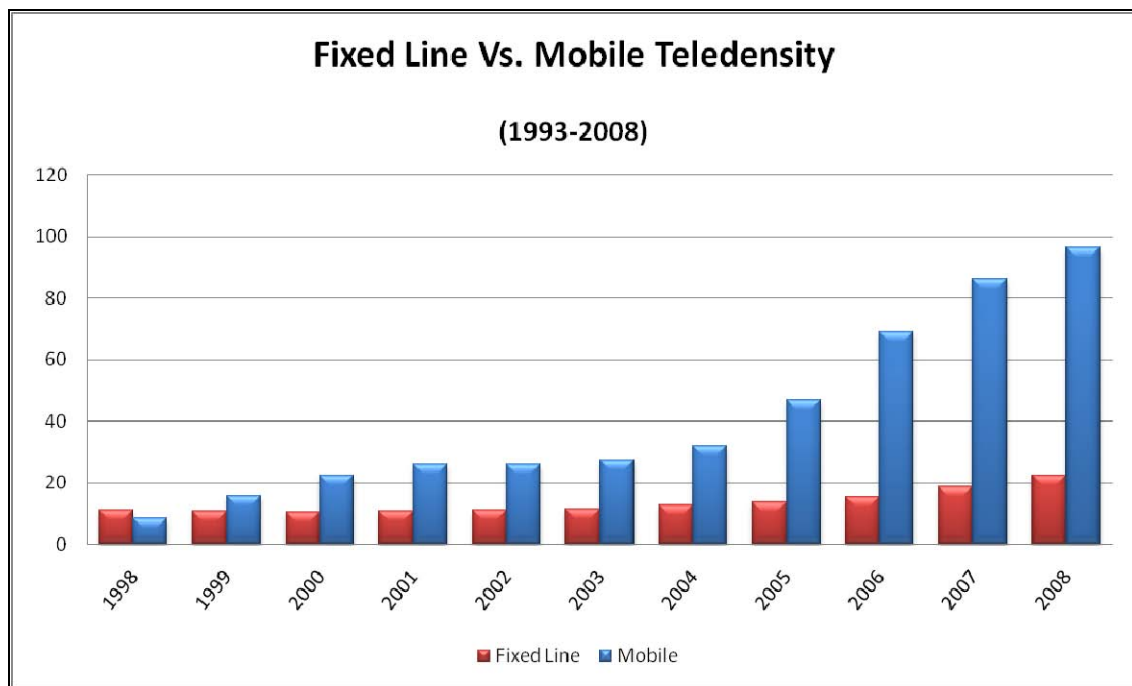


Figure 22. Venezuelan Fixed Line vs. Mobile Teledensity¹⁰⁸

Privatization, however, came to an end on May 22, 2007, when CANTV was officially re-nationalized by the government, rationalizing that the telecommunications industry, and

¹⁰⁷ Compiled from ITU Statistics, 2008.

¹⁰⁸ Ibid.

specifically CANTV, was not developing the extension of the telecommunications infrastructure outside of Caracas, and that the poor people throughout the country, as well as those in rural areas, received poor quality service, or no service at all. The effects on the government's success in managing CANTV are still too recent to determine. However, since 2007, indications appear that growth in the sector has continued on par with the years immediately preceding re-nationalization. Significant steps forward have been Venezuela's launching of its own telecommunications satellite, Simon Bolivar, from China to increase communications in rural areas of the country. A very important factor to consider with developments since the re-nationalization would be Venezuela's dependence on petrodollars to fund many of the state's goals. The price of oil, which reached a high of approximately \$140 per barrel in the July 2008, and has since fallen approximately one-third; all sectors of Venezuelan economy, especially those that have been nationalized, will likely feel the reduction in price.

D. POLICY AND REGULATIONS

1. Regulatory Body and Policy Overview

Regulation of telecommunications for all mediums is accomplished through the Comisión Nacional de Telecomunicaciones (CONATEL—National Telecommunications Commission). While formalized regulation and policy making for telecommunication dates back to 1936 with the creation of the Ministry of Transportation and Communications (MTC), CONATEL is a restructured branch of the MTC that was

officially created on September 5, 1991, with the Decree #1828 of 1991, with the MTC retaining policymaking decisions. Among its responsibilities, CONATEL must manage the development, investment, quality of service, and set pricing through regulation for all telecommunications services. Unlike Mexico or Colombia, CONATEL is responsible for all mediums including telephone (fixed and mobile), television, radio, and satellite. Furthermore, CONATEL is responsible for ensuring universal service throughout the country as well as licensing and the content of broadcasting. From early to middle of 2009, these last two issues have been of considerable interest with the denial and revocation of more than 200 radio and television stations. Changes in regulation have made laws that "include a measure requiring all broadcasters to carry Chávez's speeches when the president deems appropriate."¹⁰⁹

On January 8, 2007, the policy maker for all telecommunications was reestablished under Presidential Decree #5836 as the Ministry of Popular Power for Telecommunications and Information (MPPTI). This new policy maker's first duties included the transition from the privatization to the re-nationalization of CANTV. Its duties today include the joint management and administration of all areas of telecommunications with CONATEL with respect to licensing, broadcasting and the monitoring and enforcement of the electromagnetic spectrum, as well as the allocation of frequencies.

¹⁰⁹ Associated Press, "Venezuela Sets New Restrictions on Cable TV," *New York Times*, 9 July 2009.

2. Frequency Spectrum Management

In October 1999, the Radio-electric Spectrum Law was passed, providing an increased number of service providers. It was able to draw both national and international investment to the area of telecommunications in preparation for the liberalization of the market in 2000, when CANTV's legalized monopoly was over. The law governing the regulation of the spectrum uses an auction-based system in which companies bid for the operating licenses that they desire in designated segments of the spectrum for all the telecommunications services.¹¹⁰ An annual review is conducted by CONATEL to determine what bands within the spectrum are available for auction for a respective service given a concession for a predetermined period of time. In Venezuela not every telecommunications company is given the availability to bid for the spectrums that are being offered, instead there is a pre-qualification process on CONATEL based criteria that those bidding must meet in order to attend the auctions. Furthermore, the Telecommunications Law of 2000 provided CONATEL the ability to directly award concessions for use of the spectrum under specific criteria that include the use of a spectrum deemed to have no economic value, or when a request has been made by a national, state, or municipal entity.

¹¹⁰ Denmark General Consulate, 14 December 2007, <http://www.gkcaracas.um.dk/da/menu/Eksportraadgivning/Markedsmuligheder/Landeinformation/Telekommunikation/16>.

3. Privatization and Competition

Since the first telephone was operational in Venezuela, the service has been nationalized for more time than it has been privatized. Privatization of the telecommunications occurred in 1991 and lasted for approximately sixteen years, the first nine of which local and long distance telephone were a legal monopoly. Exploring the areas of growth in telecommunications outside the period of privatization, it can be seen that the relationship in growth matches relatively close to the countries' success in world petroleum production and its price. During the period of privatization, much of the countries growth, which exceeded that of the nationalized period prior to the privatization is as a result of changes in regulation and policy making it more favorable for foreign investment to develop capacity, quality, and service throughout the country.

It is still too early to see the results of the current wave of telecommunications growth since the re-nationalization of CANTV in 2007. As a move to increase state control of all vital sectors in Venezuela, the telecommunications industry was re-nationalized by President Chávez as a means to increase infrastructure outside of Caracas and to underprivileged people in the rural areas of the country. While it is only natural to focus on the higher populated area, subscriber data provided at the national and international level indicate only growth in subscribership during the time of CANTV's privatized years. The greatest challenge that came with privatization is that concerning universal service and the means to reach all people at reasonable rates. Though Venezuela launched a

satellite to reach people in rural areas in 2008 it is also pertinent to note that the planning for the satellite commenced in 2003 when privatization and competition in the telecommunications of Venezuela were still existent.

E. INFRASTRUCTURE

1. Television

Television in Venezuela has been around since 1950s. The first station was a state owned TVN, Televisora Nacional, and was followed by the first private station Televisa, which was later renamed Venevision after it was purchased by the Venezuelan government. The longest running television station, Radio Caracas TV, opened in 1953 and was the highlight of much controversy after a 2006 announcement that President Chávez through CONATEL refused to renew its concession when it expired in May 2007 citing that the company was responsible for inciting rioting during the attempted coup during President Chávez's regime in 2002.¹¹¹ Like many leaders before, President Chávez has used the media and in particular, television in Venezuela as a means to communicate to the people using a weekly television and radio show called *Aló Presidente*, Hello President, in which he provided updates and dictates policies. According to an interview conducted by a British reporter in Venezuela a political scientist at the Catholic University in Caracas stated: "Chávez governs from *Aló Presidente*. It is on this

¹¹¹ Organization of American States, *Office of the Special Reporter for Freedom of Expression Concern over the Situation of Radio Caracas Television (RCTV in Venezuela)*, 31 December 2006 <http://www.cidh.oas.org/relatoria/showarticle.asp?artID=688&lID=1>.

show that ministers find out if they have been fired or hired; it is here where mayors and governors are reprimanded for anything they have done wrong."¹¹²

2. Fixed Line Telephones

In an effort to connect the country, Venezuela remains poised in expanding its fixed line service throughout much of the country's rural areas. During the period of privatization, the adoption of the world's technologies of the day was made possible relatively quickly through increased direct foreign investment. Without network expansion and high prices that were associated with the legalized monopoly following the privatization, little incentive existed for people to become subscribers. While as of 2008 the overall number of subscribers topped 6.3 million people (Figure 23), the overall teledensity fared better because of a slower growing population and the governments drive to improve infrastructure because of growth in the states oil industry. Despite this true growth has come in the area of mobile telephony where Venezuela has been active for many years and took an early lead in comparison to much of Latin America.

¹¹² Rory Carroll, "Government by TV: Chávez sets 8-hour record." *The Guardian*, (London, UK) September 25, 2007.

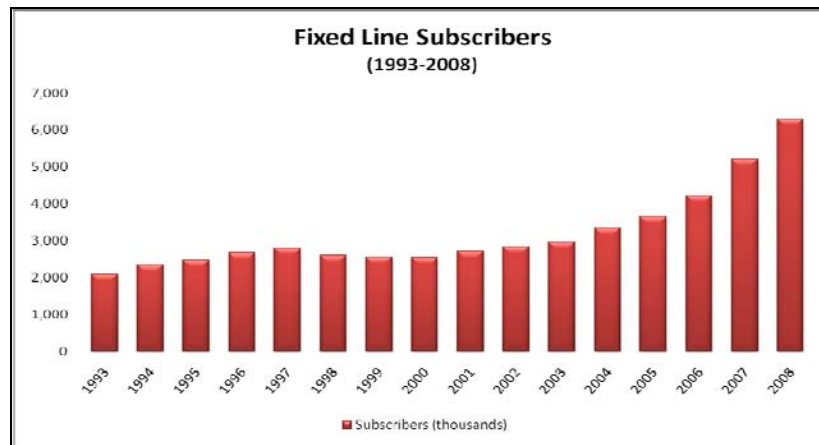


Figure 23. Venezuelan Fixed Line Telephone Subscribers¹¹³

3. Mobile Telephones

Mobile communications in Venezuela have been much more widely used than fixed line communications, due to several factors. The early start of mobile communications resulted because state total control of telephony allowed competition to enter the market only by means of wireless. This was due to legalized monopoly privatization. Investments aimed at the mobile market and increased competition assisted in reducing prices of mobile communications. Another factor was the Telecommunications Law of 2000, which greatly increased user rights and privileges. Finally, the lack of previously installed infrastructure throughout the country made a faster adoption rate of a system that could be installed and capable of servicing a greater number of users in a much faster period of time.

¹¹³ Compiled from ITU Statistics, 2008.

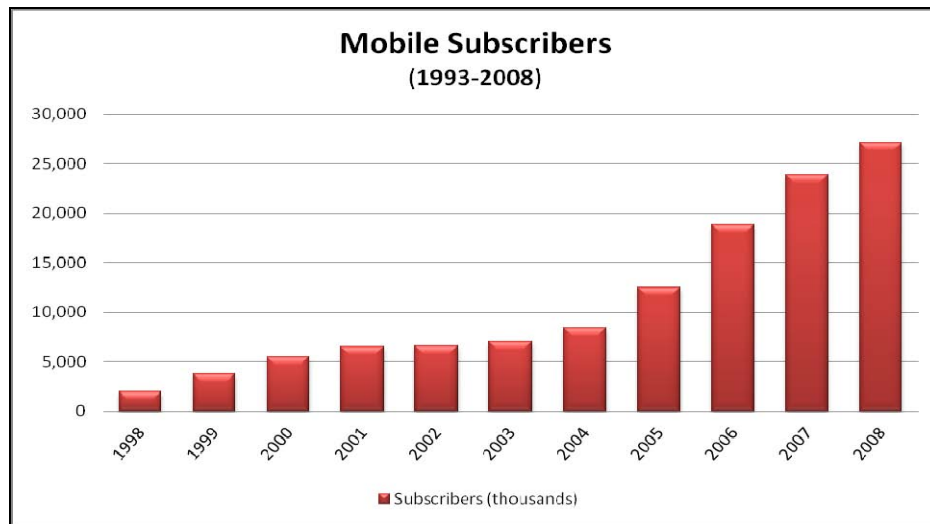


Figure 24. Venezuelan Mobile Telephone Subscribers¹¹⁴

From 2000 until 2008 that overall number of mobile telephone subscribers increased from just over 2 million subscribers to over 27 million subscribers, an average increase of approximately 3 million new subscriber per year as illustrated in Figure 24. The overall teledensity of Venezuela's mobile communications increased an average of 8.8% per year from 1998 until 2008 where it reaches approximately 96.3% of the population (Figure 25), ranking it fifth among Latin American countries, and outpacing both Colombia and Mexico according to the ITU. Despite this, it is the highest-ranking country in mobile teledensity where the number of mobile communications subscribers do not out number the overall total population.¹¹⁵

¹¹⁴ Compiled from ITU Statistics, 2008.

¹¹⁵ A teledensity of greater than 100% indicates ownership of more than one mobile telephone per person.

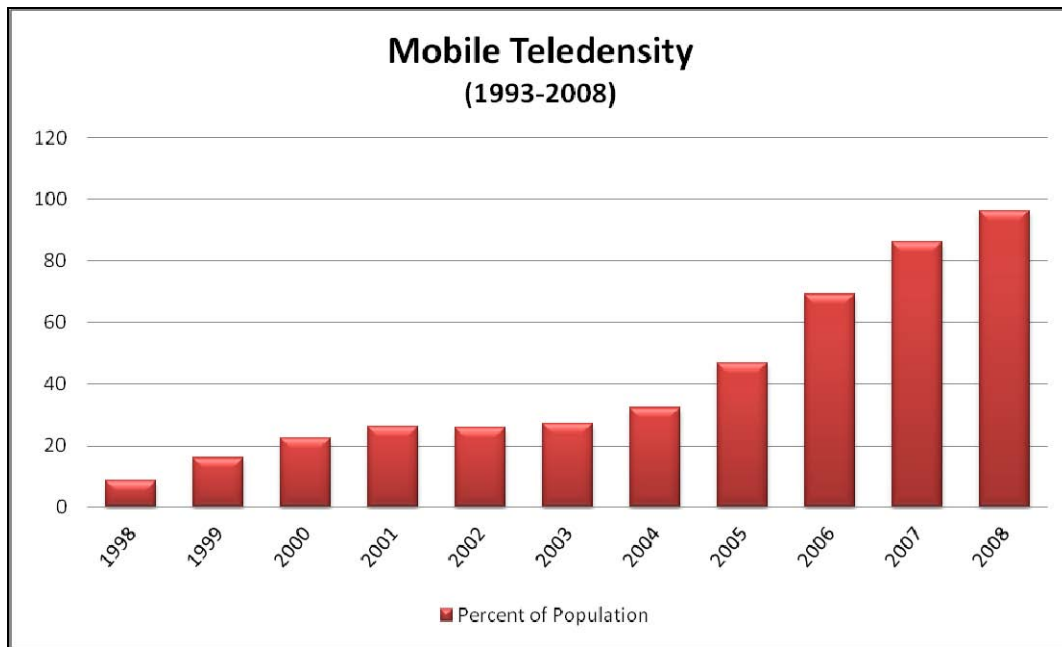


Figure 25. Venezuelan Mobile Teledensity¹¹⁶

4. Internet

In sharp contrast to mobile communications, Venezuela has fallen behind its adoption rate of the Internet. Latin America as a whole falls behind the world average of Internet subscribers, Venezuela's percentage of both users and subscribers are about average for that of Latin America and the percentage of subscribers stands at approximately 4.4%. The overall number of subscribers has almost tripled since 2000 to just over 1.2 million subscribers (Figure 26), but Venezuela faces many infrastructure challenges to develop a foundation for continued growth.

¹¹⁶ Compiled from ITU Statistics, 2008.

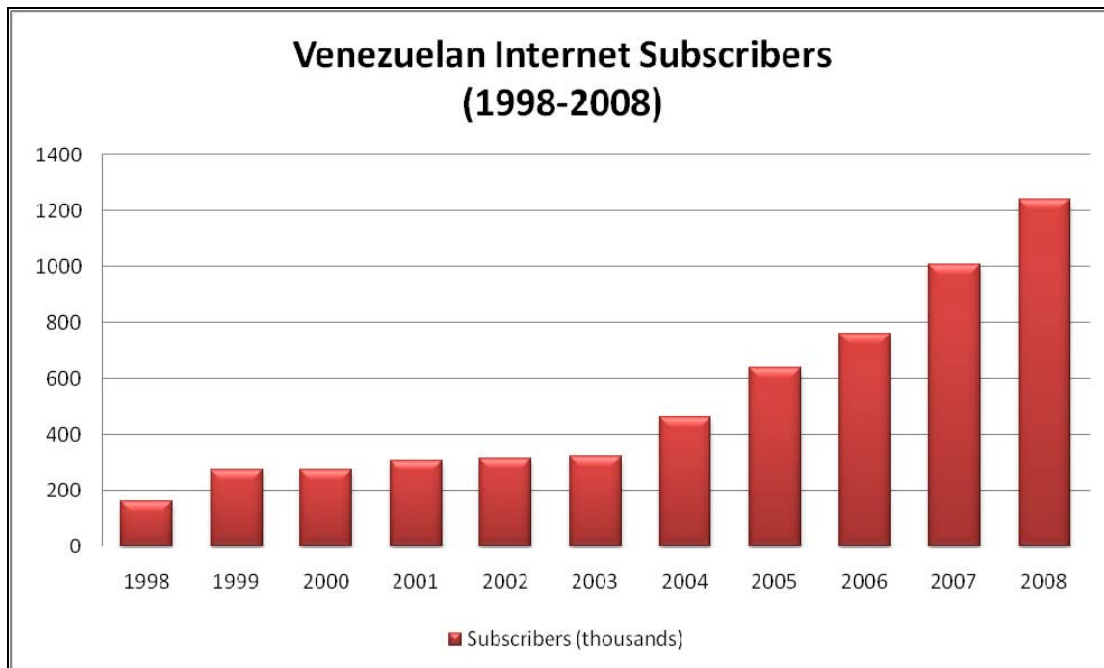


Figure 26. Venezuelan Internet Subscribers, 1998-2008¹¹⁷

As in Colombia and Mexico, the number of users in Venezuela is significantly higher than the number of subscribers. Venezuelan Internet users number more than 7.1 million people (Figure 27) and are approximately 21.5% of the total population as of 2008. Throughout Venezuelan cities Internet cafes are prevalent and though the rural areas of the country lack the quantities of Internet cafes several can be found in the more remote areas of the oil industry.

¹¹⁷ Compiled from ITU Statistics, 2008.

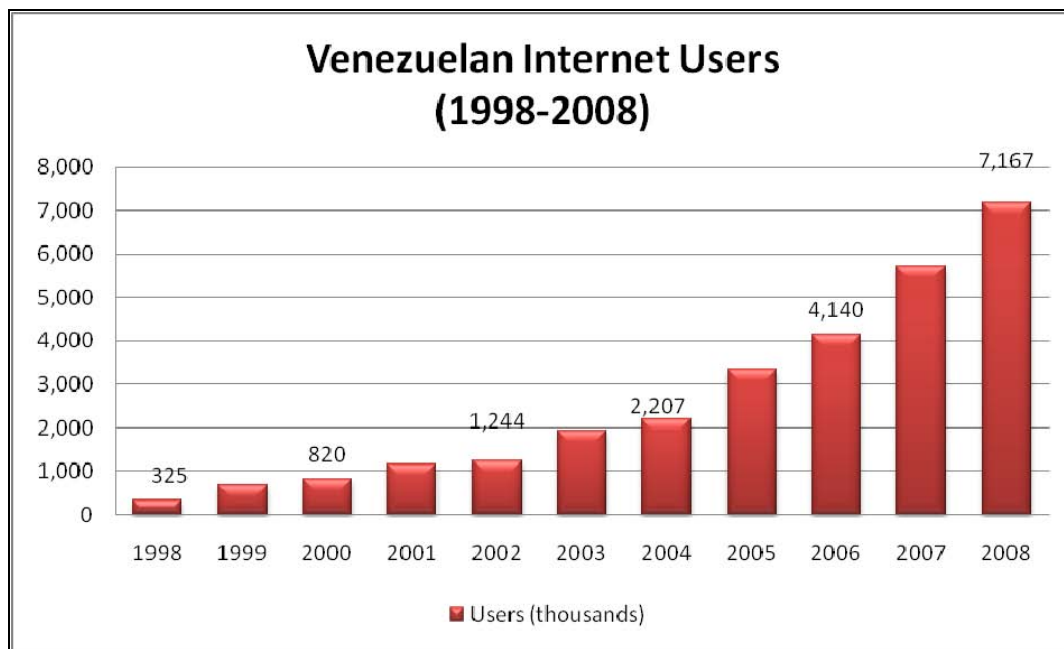


Figure 27. Venezuelan Internet Users, 1998-2008¹¹⁸

Figure 28 illustrates the disparity between Venezuela's Internet users and subscribers. As the technology has become more widespread, the growth rate of users has increased more rapidly than the number of subscribers. In Venezuela, the demand of the Internet has outpaced the industries ability to expand network capability and meet pricing at a level affordable to the majority of its population.

¹¹⁸ Compiled from ITU Statistics, 2008.

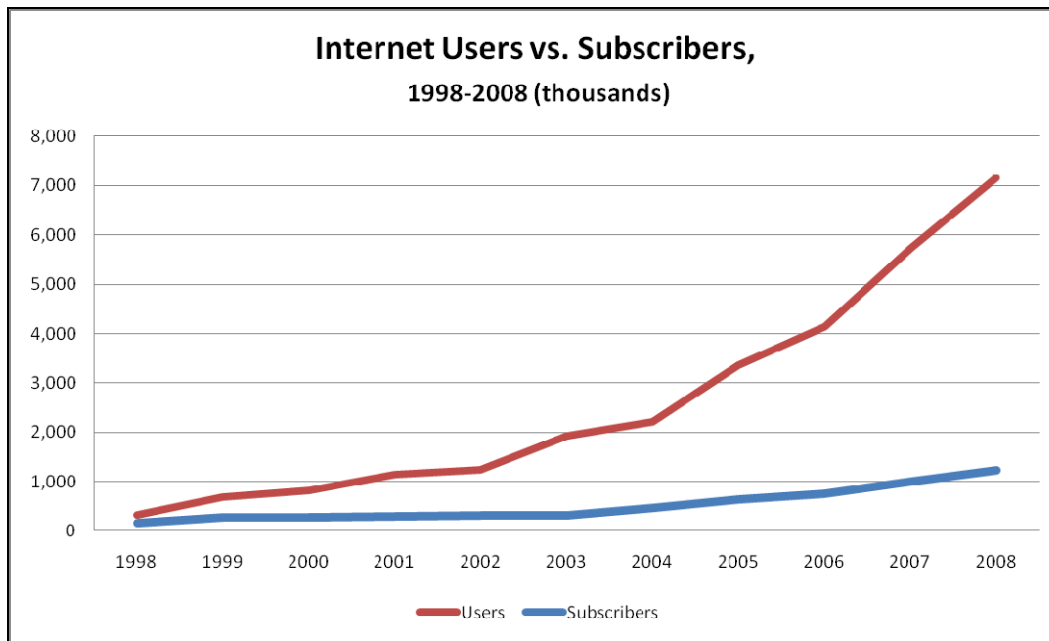


Figure 28. Venezuelan Internet Users vs. Subscribers, 1998-2008¹¹⁹

F. CONCLUSION

Venezuela's telecommunications industry has grown considerably for a country of its size. The telecommunications sector, as with to all sectors in the country, is closely tied to the petroleum industry. Venezuela is in many ways much more related economically to the countries of the Middle East than to those of Latin America. The problems it faces, however, are those that parallel many of Latin America's problems and as a result, the telecommunications industry has faced the results of such a dynamic. Political involvement in Venezuelan telecommunications has been a staple throughout its history,

¹¹⁹ Compiled from ITU Statistics, 2008.

leaving almost two decades of analysis of which to compare its results. Despite the large involvement of the state, Venezuela appears to have adopted telecommunications at a rate that has been on par with the aggregate of Latin American nations. The two sectors that require focus in Venezuela are fixed-line telephony and Internet connectivity, both faced by challenges with lack of infrastructure as a result of cost and time to deploy. The mobile communications market in Venezuela has done very well mainly due to outside investment and the unproblematic nature of its infrastructure's deployment. The current level of state involvement as well as the recent increase in nationalizations and expropriations of industries makes Venezuela a poor choice for telecommunications investment in the near future.

VI. CONCLUSION

A. COUNTRY AND REGIONAL COMPARISONS

First, comparisons among Latin American countries in any area are difficult to quantify as each country has its own merits and deficiencies. However, common themes can be found that can apply when looking at telecommunications from a regional perspective. Geography played a large role in the early development. As infrastructures overcame the geography, the next challenges were political, social, and economic. In some instances, technologies and business models have been modified to enable the exploitation of the uniqueness to Latin America. In conducting this research, the two most interesting areas of such development have been the mobile communications market and the development of the Internet. The manner in which the countries set policy and regulation for fixed line telephones was of interest, but the applications of each appears to have provided country specific information that in many cases might not be applicable to other countries because of the unique nature of the politics.

1. Mobile Communications

Mobile communications technologies throughout most Latin American countries are on par with that of the United States. While the price that the user, even the underprivileged user, pays for service might exceed that of the United States, the first step of obtaining the technology and the infrastructure is already present. The

model for pre paid cellular phones is one that has worked very well in Latin America. Despite the great disparity between the wealthy and the poor, there is a billing plan or a prepaid card with minutes that is available to meet a wide range of economic needs.

2. The Internet and Convergence

In the United States, the Internet is available in many places. Often it is even free while users drink coffee or have lunch. Latin American Internet has not developed as extensively. People lack Internet in homes because the cost is high and the infrastructure is sparse or nonexistent. Today's mobile communications are increasingly incorporating data communications bandwidth nearing conventional Internet quality. Furthermore, as convergence in services increase infrastructure becomes less expensive and time consuming to install. The next challenge to face as telecommunications develop in Latin America will be if the Internet is exploited via mobile communications, which are already prevalent throughout, or if convergence will provide more affordable means to meet demand.

3. Fixed Line Telephones

The fixed line telephony in Latin America illustrates an interesting dynamic. The more developed countries all have had negative growth rates in the number of subscribers and teledensity. The less developed countries, however, continue to pursue increased subscribership and teledensity. The trends indicate that all the countries, with the exception of Venezuela and Cuba, are carrying forward with privatized industries with full competition. Though Bolivia

has been driving in a similar road as Venezuela, for the moment, telecommunications remain liberalized and private.

B. RECOMMENDATIONS

Latin America's developments have provided insight into some areas of telecommunications that have differed from the developments in the United States. In order to tailor the telecommunications industry in Latin America countries have been required to modify the way in which they conduct business, the way in which telecommunications is managed and regulated, and has had to adopt those technologies that fit its unique qualities. In some instances such differences proved to be good decisions and in others the differences indicate poor decision-making. Both faults and successes lie on the hands of the telecommunications companies and the governments alike. Often however, Latin America has shown that government has been the cause in more instances than the companies have, and the faults tend to reside with the policy and regulation.

1. Policy and Regulations

In the countries studied, Mexican and Venezuelan telecommunications policies modeled the process of privatization with a continued legalized monopoly. In Mexico, Telmex was granted a legal monopoly of the local and long distance telephone service for a period of six and nine years respectively. In Venezuela, CANTV was granted a legal monopoly for nine years. Both countries exhibited strong initial growth as result of this method, however, following the initial spark the rate of growth in these countries slowed and in the case of Venezuela stagnated for several

years. It was not until liberalization and increased competition occurred that the rate of growth once again continued to rise. Furthermore, the problems associated with such an approach have led Telmex to remain a virtual monopoly over telecommunications in Mexico and is expanding throughout other countries in Latin America in a similar manner. For other Latin American countries to provide solid continual growth the models of privatization and liberalization used by Mexico and Venezuela are not good examples to follow.

A good lesson learned concerning privatization and liberalization that could serve as a potential model for other Latin American nations was that used by Colombia. Despite Colombia's failed attempt to follow the model used by Argentina, a very quick transition to liberalization and privatization, the final process chosen by Colombia proved to show a steady and increasing level of growth. Colombia's liberalization and privatization efforts were implemented in a series of steps over a period of time, allowing a more gradual transition that appears to have proven successful.

2. Technologies and Business Models

The greatest lesson learned in this study is that the business model used by companies will only be successful if it satisfies the needs of the user. Latin America illustrates a positive example for the development and growth of the mobile communications market. Income inequality exists throughout Latin America. A relatively inexpensive piece of telecommunications equipment was unable to sell because the service it provided was at a cost above the affordability of many. The change in the business model

enabling the purchase of prepaid phones and phone cards allowed for increased affordability to low income people to use a technology that otherwise would not have used. Latin America has exhibited growth in the mobile communications industry to such a scale that as of 2008 Argentina, El Salvador, Guatemala, and Uruguay had a mobile teledensity of greater than 100% according to the ITU. Furthermore, ranking the United States amongst Latin American nations, the U.S. would rank ninth at approximately 86.8% in terms of mobile teledensity.¹²⁰

C. FUTURE RESEARCH

There are many areas for continued research with this topic. The area of telecommunications in Latin America is extremely vast. Each of the countries explored in this thesis could fill volumes. Other companies beyond Telmex and América Móvil are of interest for potential growth and as potential competition to the current giants. Policies and regulations developments can be areas for future research. As technologies continue to unfold at increasing rates, how will underdeveloped areas keep up? Will they need to keep up or are there possible shortcuts that can be taken? If a person has never had a landline but now has a cell phone, the questions beacons, if the customer still needs that landline?

1. Emerging Countries

Several countries could prove to be of great interest in Latin America as an area for future research, but of all

¹²⁰ ITU ICT 2008 Statistics.

of them Cuba stands out. Cuba is a country that has been held back in all areas of society and its telecommunications developments are no exception. Cuba's political situation has improved slightly since Fidel Castro passed the presidency to his brother, Raul, and since President Obama has come into office potentially decreasing the barriers to trade. Future study concerning Cuba could potentially look into what would need to be accomplished and overcome to bring Cuba to be on par with developed countries throughout the world. What policies and regulations should Cuba implement as it emerged from more than half a decade of communism and isolation? These and other questions would be an interesting area to explore for continued research.

2. State Control and Monopolies

This thesis examined growth rate, regulations, and policies, as telecommunications shifted from nationalization to privatization and from monopolies to competitions. Continued research can look at the events in countries such as Venezuela where the trend is going in the opposite direction. What happens to telecommunications when a privatized market becomes nationalized? Can the economic stability in most Latin American countries support governmental control of the telecommunications industry? Are people willing to lose the opportunity to choose who provides them with telecommunications services? The argument that one who does not know freedom will not miss it can be made, but could the same be true of one who knows freedom and loses it, even if it comes at promised reduced prices and better service?

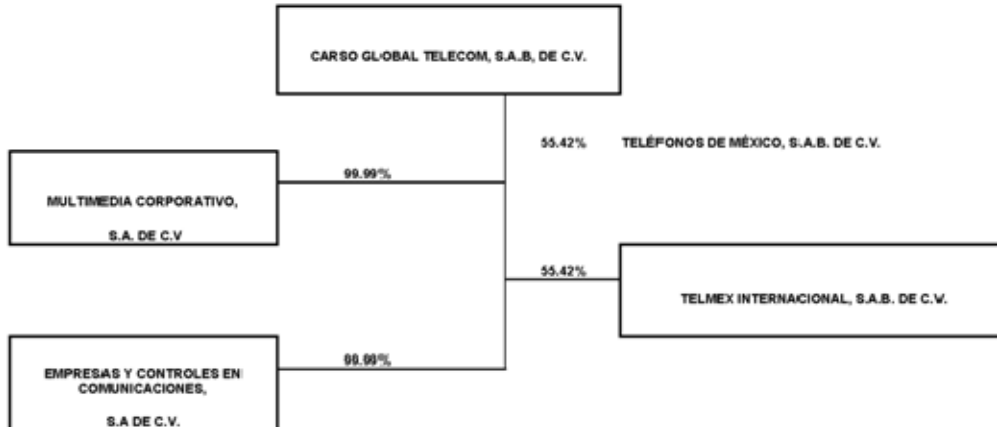
3. Latin American Telecommunications Companies

While both Telmex and América Móvil were examined in this study, there is much more that could be said and examined in regards to both of these companies. Other telecommunications companies throughout Latin America such as Brasil Telecom and Spain's Telefonica would provide very interesting companies to examine for continued research. As one of the world's leading emerging countries, Brasil Telecom, Brazil largest telecommunications company is an area of interest in the years to come. Spain's Telefonica has been involved throughout all of Latin America for many years, and on a regional scale, provides the greatest competition against Mexico's Telmex and América Móvil.

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APPENDIX: TELMEX AND TELMEX INTERNATIONAL SUBSIDIARIES

The Corporation's principal subsidiaries to December 31, 2007 are set forth in the table below:



The Corporation, through Telmex, has various subsidiaries. The following list shows the most important subsidiaries and investments accounted using the ownership method to December 31, 2007 and 2006.

		Equity Interest to December 31,	
Name of the Corporation	Country	2007	2006
Subsidiaries:			
Telmex (1)	Mexico	71.29%	71.16%
Integración de Servicios TMX, S.A. de C.V.	Mexico	100.0	
Alquiladora de Casas, S.A. de C.V.	Mexico	100.0	100.0
Compañía de Teléfonos y Bienes Raíces, S.A. de	Mexico	100.0	100.0
Consortio Red Uno, S.A. de C.V.	Mexico	100.0	100.0
Teléfonos del Noroeste, S.A. de C.V.	Mexico	100.0	100.0
Uninet, S.A. de C.V.	Mexico	100.0	100.0
Telmex USA, L.L.C.	USA	100.0	100.0
Associates:			
Grupo Televisa, S.A. de C.V.	Mexico	45.0%	45.0%
2 Wire, Inc.	USA	13.0	13.0
1) Corresponds to the shareholding interest by Telmex			

Figure 29. From Carso Global Telecom, 31 December 2009¹²¹

¹²¹ Carso Global Telecom, Annual Report Ending December 31, 2007.

The investment in the principle and associated subsidiaries of Telmex Internacional to December 31st, 2007 and 2006 is as follows:

Name of the Corporation	Country	Equity Interest to December 31,	
		2007	2006
Subsidiaries:			
Telmex Internacional (1)	Mexico	71.29%	71.16%
Controladora de Servicios de Telecomunicaciones, S.A. de C.V.	Mexico	100.0%	100.0%
Anuncios en Directorios, S.A. de C.V.	Mexico	100.0	100.0
Sección Amarilla USA, LLC	USA	80.0	80.0
Embratel Participações S.A. (Embrapar)	Brazil	98.0 ⁽²⁾	97.0 ⁽²⁾
Empresa Brasileira de Telecomunicações, S.A. (Embratel)	Brazil	96.0	96.3
Star One, S.A.	Brazil	77.6	76.8
Primesys Soluções Empresariais, S.A.	Brazil	97.0	96.0
Vesper, S.A.	Brazil	97.0	96.0
Vésper São Paulo, S.A.	Brazil	97.0	96.0
Telmex do Brasil Ltda.	Brazil	98.0	97.0
Metrored Holdings, SRL (formerly Metrored Telecomunicaciones, SRL)	Argentina	95.0	99.3
Telmex Argentina, S.A.	Argentina	95.3 ⁽⁴⁾	99.3
Ertach, S.A.	Argentina	95.1 ⁽⁵⁾	-
Telmex Chile Holding, S.A.	Chile	100.0	100.0
Telmex Corp., S.A. (antes Chilesat Corp. S.A.)	Chile	99.7	99.7
Telmex TV, S.A.	Chile	100.0	-
Telmex Colombia, S.A.	Colombia	100.0	100.0
Superview Telecomunicaciones, S.A.	Colombia	99.2	99.2
Telmex Hogar, S.A.	Colombia	100.0	-
TV Cable Telecomunicaciones, S.A. E.S.P.	Colombia	100.0	-
Networks and Operation, S.A.	Colombia	100.0	-
The Now Operation, S.A.	Colombia	100.0	-
Megacanales, S.A.	Colombia	100.0	-
Cablecaribe, S.A.	Colombia	100.0	-
Telmex Peru, S.A.	Peru	100.0	100.0
Boga Comunicaciones, S.A.	Peru	100.0	-
Ecuadortelecom, S.A. (Ecutel)	Ecuador	100.0	-
Associates:	U.S.A.	13.0	-
Net Serviços de Comunicação, S.A.	Brazil	34.4 ⁽³⁾	38.6 ⁽³⁾

(1) Corresponds to controlling shares owned by Telmex Internacional.

(2) To December 31, 2007, the Corporation owns 98.1% controlling shares (98.0% in 2006).

(3) Corresponds to the percentage of direct equity interest by Telmex Internacional in Net; therefore, to December 31, 2007, the direct and indirect equity interest owned by Embratel Participações S.A. in Net Serviços de Comunicação, S.A. is 35.1% (39.9% in 2006.)

(4) Corresponds to the percentage of indirect equity interest by Telmex Internacional in Telmex Argentina. The direct equity interest of Metrored Holdings, SRL and Controladora de Servicios de Telecomunicaciones, SA de CV in Telmex Argentina is 100%.

(5) Corresponds to the percentage of indirect equity interest by Telmex Internacional in Ertach. The direct equity interest of Metrored Holdings, SRL and Controladora de Servicios de Telecomunicaciones, SA de CV in Ertach is 100%.

Figure 30. From Carso Global Telecom, 31 December 2009¹²²

¹²² Carso Global Telecom, Annual Report Ending December 31, 2007.

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